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INTERNATIONAL ABSTRACT OF SURGERY

JULY, 1920

ABSTRACTS OF CURRENT LITERATURE

GENERAL SURGERY—SURGICAL TECHNIQUE

OPERATIVE SURGERY AND TECHNIQUE

Henderson, Y., Haggard, H., and Coburn, R. C.: The Therapeutic Use of Carbon Dioxide after Anæsthesia and Operation. *J. Am. M. Ass.*, 1920, lxxiv, 783.

In order to show the effects of inhalations of carbon dioxide it is essential to establish as a standard of comparison the usual behavior of patients following anæsthesia. This is difficult as after-effects vary according to the duration and depth of the anæsthesia, preliminary medication, the temperament of the patient, and the severity of the operation.

Protocols of the cases of one patient who received no carbon dioxide and of four who received inhalations after anæsthesia are given.

The authors conclude that inhalations of carbon dioxide properly diluted with air are highly beneficial, and if given carefully, a safe method of treatment after anæsthesia and operation. The beneficial effects observed were: (1) an augmentation of breathing which rapidly ventilates the anæsthetic out of the blood; (2) a powerful stimulant effect on the circulation, particularly the venous return, and rapid restoration of arterial pressure without subsequent relapse or unfavorable consequences; (3) a marked decrease of postoperative nausea, vomiting, and thirst; and possibly (4) restoration of intestinal tonus.

A simplified apparatus for the administration of carbon dioxide is illustrated and described.

ISABELLA HERB.

Landois, F.: The Treatment of Postoperative Tetany in Man by the Transplantation of Parathyroid Glands (Die Behandlung der postoperativen Tetanie durch Epithelkoerpertransplantation beim Menschen). *Zentralbl. f. Chir.*, 1920, xlvii, 74.

The author reports 35 experiments performed on dogs to discover the effect of transplanting parathyroids. Such transplantation may be done successfully only by the autoplastic method and then only within certain limitations. Autoplastic transplantation prevented fatal tetany but did not save the animal from cachexia parathyreopriva. All the dogs in which homoplastic transplantation was done died, either after the operation or following tetany. In the cases of dogs already suffering from tetany even autoplastic transplantation was unsuccessful. A functional transplantation is successful therefore only in the absence of tetany.

Borchert reports cases in which he obtained more or less satisfactory results in man by means of homoplastic transplantation after the onset of tetany. No absolute cure was obtained, however, as the author himself admits. Convulsions ceased, but the Chvostek, Trousseau, and Erb phenomena persisted. According to Landois, this fact proves that the transplanted parathyroids functioned only temporarily.

The transplanted glands soon become necrotic and are converted into a fibrous tissue mass. In a case of chronic postoperative tetany some parathyroid tissue must remain or the patient would succumb. If active gland tissue is implanted in such cases it functions immediately and the convulsions cease. This function lasts only until the transplant is replaced by fibrous tissue, but during this time the residue of the patient's own parathyroid tissue may recover or become hyperplastic and function sufficiently to prevent the recurrence of convulsions. The change in the clinical picture is then due solely to the parathyroid tissue the patient has retained and not to the homoplastic transplant.

The transplantation of parathyroid tissue is of value only in the mild and chronic cases of tetany and never in the severe or acute cases in which all parathyroid tissue has been removed or destroyed at the time of the goiter operation.

The author has demonstrated that in about a week the transplanted tissue is completely necrotic. This was corroborated also by a clinical case in which the tetanic convulsions ceased for a period of nine days and then recurred and caused death.

According to our present knowledge the parathyroids are not organs of internal secretion but glands the function of which is to render harmless toxic substances within the body. It is obvious therefore that treatment with parathyroid extracts would be unsuccessful. L. A. JUHNKE.

Benjamin, A. E.: Postoperative Intra-Abdominal Adhesion—Some Causes and Means of Prevention. *J.-Lancet*, 1920, n.s. xl, 149.

In the author's opinion a most important factor in the causation of intra-abdominal adhesions is oral sepsis and unless all foci of infection are eliminated before operation a laparotomy in which an attempt is made to loosen adhesions of the abdominal viscera will result in failure.

In cases in which abdominal adhesions have formed, colitis and gastroptosis must not be neglected. When the bowel is crippled and fixed in a faulty position by firm bands an operation may be necessary to correct the condition. At operation raw surfaces should be thoroughly covered with unimportant contiguous structures, especially when local infection or intra-intestinal sepsis is present. All infected areas should be well drained and all tissue that will harbor infection indefinitely should be completely excised.

The operation must be performed quickly and with the least possible exposure of healthy tissue to infection. Care must be taken to avoid injuring the peritoneum by instruments, gauze, chemicals, or rough handling. The peritoneum must be closed in such a way that gaps or rents will be prevented. Intra-abdominal tension following a laparotomy should be reduced to the minimum.

P. M. CHASE.

ASEPTIC AND ANTISEPTIC SURGERY

Hawk, P. B., DaCosta, J. C., Smith, C. A., and others: A Chemical and Clinical Study of Chlorlyptus, A New Chlorinated Antiseptic. *Therap. Gaz.*, 1920, n.s. xxxvi, 156.

Chlorlyptus is a synthesized chlorinated compound of oil of eucalyptus containing approximately 25 per cent of chlorine. It is a heavy, oily liquid of a dark red-brown color, acid in reaction, and having a slightly chlorinous aromatic odor. It is easily soluble in paraffin oil, alcohol, and ether, less readily soluble in chloroform, and but very slightly soluble in water. It may be used in the treatment of all conditions in which it is desirable to have a non-irritating antiseptic acting over an extended period of time.

Reports of several cases treated with chlorlyptus are given. When employed internally the drug is irritating to the stomach unless taken in double gelatin capsules the outer capsules of which are formol hardened. In the cases reported the administration was begun in 3-minim doses after meals. No toxic action was noted. The most disagreeable after-action was a slight regurgitation which gave a taste of the drug in the mouth and was especially noticeable when the chlorlyptus was taken on an empty stomach. When the dose was increased up to 25 minims daily, the regurgitation and taste became more marked. The most definite effect was a very persistent urticaria lasting for three weeks, during which time nearly the entire body was involved.

Chlorlyptus in paraffin oil, 1:10, was used with benefit as a nasal spray. It caused a slight secretion of watery fluid, but never any evidence of inflammatory reaction. Local applications to the throat of chlorlyptus in oil, 1:5, were of evident benefit. In the majority of cases chlorlyptus appeared to act fully as readily and with less irritation than other chlorinated antiseptics. In addition, it seemed more suitable for use in the genito-urinary tract than other chlorinated antiseptics. It has been employed with good results also in the lower intestine. It has no corrosive action upon metals and therefore may be applied with the ordinary oil spray having metal parts. I. W. BACH.

ANÆSTHESIA

Palermo, A. M.: Anæsthesia and Cerebral and Spinal Surgery. *Med. Rec.*, 1920, xcvii, 231.

Palermo has abandoned the use of complicated automatic apparatus in his anæsthetic work and now uses a simple oxygen tank on the side of which is hung a bottle containing ether, the anæsthetic he uses constantly. By this means the oxygen becomes saturated with ether vapor and then is carried to the lungs through a tube running from the bottle to the mask. To date, 250 patients have been anæsthetized in this manner and there have been no deaths or complications which could be attributed to the anæsthesia. One hundred and fifty-eight of the operations were subtemporal decompressions; 12, suboccipital decompressions; 16, operations on the gasserian ganglion; and 14, laminectomies.

ISABELLA HERB.

Fitz, R.: Surgical Anæsthetics in Diabetes Mellitus. *Med. Clin. N. Am.*, 1920, iii, 1107.

In the five years preceding 1918, 365 diabetic patients were admitted to the Massachusetts General Hospital. Fourteen per cent required surgical treatment. Of the 54 with surgical complications, 9 were obviously unsuited for operation either because of their general condition or because the surgical condition present did not warrant operative interference. Forty-five patients came to operation. In this series there were 13 deaths, a mortality of nearly 30 per cent.

The author divides these cases into two groups, the first group consisting of 20 cases in which there was an acute infection or gangrene before operation, and the second consisting of 25 non-infected cases. Since 10 of the infected patients died (50 per cent) and there were 3 deaths among those not infected (12 per cent), it is evident that any acutely infectious

condition in a diabetic patient requiring surgical interference must be considered at once of the utmost gravity, and a non-infectious condition requiring operation is also dangerous.

Local anæsthesia was used in 12 cases, spinal anæsthesia in 8, gas-oxygen anæsthesia in 11 and ether anæsthesia in 14. In the fatal cases of infection local anæsthesia was induced in 3; spinal anæsthesia in 5; gas-oxygen anæsthesia in 4; and ether anæsthesia in 1. At least as regards the infected cases there seems no reason for assuming that one anæsthetic was more harmful than another. In the non-infected cases, on the other hand, no deaths followed local or gas-oxygen anæsthesia, while 1 patient died after spinal anæsthesia and 2 after ether anæsthesia.

The majority of the infected patients were surgical emergencies and could not be given a thorough course of pre-operative treatment. Four, however, were thoroughly prepared for operation by a prolonged course of treatment and of these 2 died, both patients under 30 years of age. Two other patients who died were aglycosuric just before operation. The remaining 14 patients were operated upon soon after they entered the hospital. Six died, a mortality of 43 per cent. The importance of pre-operative preparation in a septic case is therefore an open question. The prolonged undernourishment necessary to free the urine of sugar and acid and to render normal the blood-sugar, fat, and acetone-body concentration may so lower the patient's resistance to infection as to be unjustifiable. The best rule would seem to be to postpone operation as long as the patient's clinical condition permits, but not until septicæmia has developed or the patient has become so weak that his powers of recuperation and resistance are lost.

Nine of the 25 uninfected patients were given prolonged medical treatment and none of them died although 4 were given ether anæsthesia, and 2, spinal anæsthesia. Two were made aglycosuric just before operation, but did not receive prolonged treatment. One died following ether anæsthesia and 1 lived following spinal anæsthesia. Fourteen were admitted to surgical wards at once and operated upon without consideration of the diabetes. Two died, 1 after ether anæsthesia and 1 after spinal anæsthesia. Six others were given ether; 1, spinal anæsthesia; 1, gas-oxygen, and 4, local anæsthesia.

From this statistical survey Fitz draws the following conclusions:

It is evident that no diabetic is as good a surgical risk as a normal person. No diabetic with an acutely infectious process is as good a surgical risk as a diabetic without signs of infection. Whenever possible a prolonged course of pre-operative treatment should be given to minimize the dangers of operation. The risk of any operation for a properly prepared non-infected diabetic patient is slight, but local anæsthesia or gas-oxygen are safer anæsthetics than spinal anæsthesia or ether. A diabetic with an infectious process requiring operative interference must be regarded as critically ill. A course of treatment for the diabetes should be undertaken in preparation for operation when possible and insisted upon in all uninfected cases in which the surgical complication is not an acute emergency. ISABELLA HERB.

Gwathmey, J. T.: The Anæsthetic Problem in Lung Surgery. *Rhode Island M. J.*, 1920, iii, 41.

Gwathmey's paper is based upon a large clinical experience and between 80 and 100 experiments performed upon animals in the central Medical Department Laboratories, A.E.F., Dijon, France.

The anæsthetic agent used in lung surgery should be one that sustains the blood at the highest level consistent with good surgical anæsthesia during the operation and with a minimum of reaction afterward. By a process of elimination it was found that the choice lay between ether and nitrous oxide. The final choice was nitrous oxide and oxygen.

As a method of administering the anæsthetic, the positive-pressure method was selected. This involved the use of an air-tight mask with a rubber-bag reservoir for the gases and a pressure of from 5 to 10 mm. of mercury. An expiratory valve may be provided for the escape of the gases but is not absolutely essential as the mask may be held in such a manner as to allow a constant leakage. No air can possibly enter the apparatus at any time when positive pressure is sustained. A slight positive pressure in addition to the gases is unquestionably an important factor in maintaining anæsthesia and a great aid to the surgeon as it facilitates the examination of the lung, makes the operation easier, eliminates the necessity for dangerous traction, gives satisfactory hæmostasis, and obviates the need for haste.

The apparatus for administering nitrous oxide and oxygen is so simple and inexpensive that it may be used universally not only for lung surgery but for other operations as well.

It was found that full surgical anæsthesia which is safe without preliminary medication is unsafe following preliminary medication. For this reason the deep anæsthesia was gradually merged to a light anæsthesia, and finally to analgesia with unconsciousness. In the earlier work it occasionally happened that when too much oxygen was given, all physiological requirements were met and breathing ceased temporarily for a half or three-quarters of a minute. During this interval the pulse continued as before and the patient had a pink color. Such a temporary cessation of breathing may be obviated by: (1) decreasing the positive pressure momentarily, (2) allowing air to enter the mask, or (3) slightly increasing the amount of nitrous oxide.

ISABELLA HERB.

Mott, C. H.: Intratracheal Insufflation of Chloroform: A Report of 357 Cases. *Proc. Roy. Soc. Med.*, Lond., 1920, xiii, Sect. Anæs., 25.

In recent years there has been a tendency to improve the methods of inducing anæsthesia with ether.

The drop and the vapor methods are seldom followed by serious after-effects, and the introduction of intratracheal insufflation of ether has rendered the use of chloroform even less necessary. Today chloroform is used largely as a mere adjunct to ether.

Ether is given with success by either the closed or the open methods; chloroform, by only the open method. The more open the method, the safer the use of chloroform.

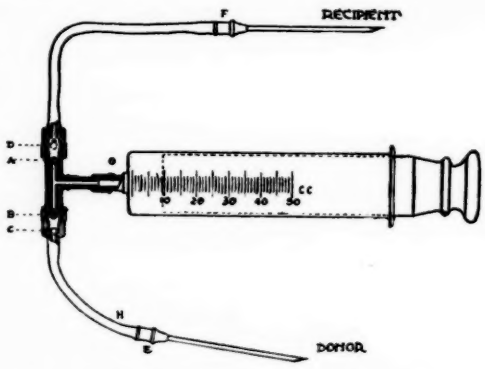
The author discusses chloroform intratracheal anæsthesia and gives a description of the apparatus which he devised and employs. ISABELLA HERB.

SURGICAL INSTRUMENTS AND APPARATUS

Stanley, L. L.: Blood Transfusion Apparatus. *J. Am. M. Ass.*, 1920, lxxiv, 671.

The apparatus described is of the ball-valve type and can be used with a Luer syringe of any capacity. When the plunger of the syringe is drawn out, Ball A engages in the socket, preventing the passage of fluid, while Ball C is displaced upward to Position B, allowing the blood to come from the donor into the syringe. When the syringe piston is pushed in, the ball in the lower chamber engages the socket at C, preventing the fluid from returning to the donor. At the same time Ball A is released from its socket and assumes a position in the upper chamber at D, allowing the blood forced from the syringe to flow into the veins of the recipient. The balls engage by gravity and the valve must be held in vertical position. The arm of the recipient, therefore, must be slightly higher than that of the donor. The syringe and attachments are sterilized and the interior of the syringe is coated with Ablemann's citrated ointment consisting of:

	Gm. or Ccm.
Adeps lanæ	10.00
Aqua	10.00
Sodium Citrate	10.00
Petrolatum q. s. ad	100.00



Air is first displaced by drawing in sodium chloride solution, a few cubic centimeters of which are left in the barrel. The blood is then drawn in the usual manner. If it is desired to give citrate solution with the blood, a burette is provided to which a rubber tube is attached with a No. 28 hypodermic needle at its end. The needle is plunged into the connecting tube at H. As the blood is being drawn from the donor the citrate solution is taken in from the container. The percentage of the mixture is regulated by the size of the needle used at H and E and the strength of the citrate solution.

The advantages claimed for the method are: (1) the amount of blood transfused can be measured; (2) the blood is not exposed to the air; (3) the method is direct; (4) only veins are used and repeated transfusions from the same donor may be made; and (5) any amount of blood can be transfused quickly.

This same apparatus may be used for injections of arsphenamine solution, the fluid being drawn from the vessel through the donor's tube and injected through the recipient's tube. I. W. BACH.

SURGERY OF THE HEAD AND NECK

HEAD

Clift, M. W.: Fluoroscopic Examination in Injuries to the Head. *Am. J. Roentgenol.*, 1920, n.s. vii, 137.

The author does not urge the substitution of fluoroscopy for the ordinary procedure of stereoscopic plating, but is firmly convinced that preliminary fluoroscopy will generally facilitate the diagnosis and increase its accuracy. The enormous experience of the war has demonstrated the value of the fluoroscopic examination in revealing the presence not only of intracranial foreign bodies but also of small fractures, empyemata of the sinuses, and minute foreign bodies in the orbit.

To insure a thorough examination and avoid missing important pathology Clift advocates a routine method of procedure. The patient should be placed first in dorsal decubitus, when the head should be examined postero-anteriorly, being rotated toward the right until the lateral position is reached, then back again, and then rotated toward the left and back again to its original position. To examine the sinuses, the head should be flexed on the neck. The patient should then be placed in the prone position with the head placed in Water's position. To examine the jaw, the patient should be placed in the supine position and the head slowly raised until the outline of one ramus is unobstructed. In searching for foreign bodies in the orbit, the head should be turned so that the injured eye is nearest the screen, and then rotated until a silhouette of the lids is obtained.

To determine the presence of foreign bodies in the head close co-operation between the roentgenologist and surgeon is necessary and the methods of procedure must be adapted to the surgical requirements. To fix the track of the foreign body the central ray should be directed through it and the point of entrance. To determine the depth, the author prefers the Roussel method. To solve the problem of the relationship between a foreign body and important anatomical structures he employs a cross-section anatomy with a key plate on celluloid used directly on the fluoroscopic screen. The article includes also descriptions of various devices and procedures which will facilitate the removal of foreign bodies. ADOLPH HARTUNG.

Wilensky, A. O.: The Association of Fever with Fracture of the Skull. *Am. J. M. Sc.*, 1920, clix, 402.

A slight rise of temperature is so common after fracture of the skull, with and without injury of the intracranial contents, that it is rather expected in almost every case. This rise is rarely above 100 degrees F., lasts for approximately twenty-four hours, and then subsides. In some cases, however, fever assumes a more important rôle, rising to extraordinary heights and persisting for comparatively long periods of time. Such fever indicates the presence of a grave complication or the reaction to an extensive trauma. The author has made a study of cases in this latter group.

Definite fever occurred in 15 of a series of 72 cases of fracture of the skull. In another series of 77 cases, it developed in 22. In the febrile cases of the first series the fractures were situated in the posterior fossa in 6, in the middle fossa in 2, and over the vertex and sides of the skull in 7. One fracture was compound externally, 1 communicated with the middle ear, and 2 communicated with the nasal cavities. The others were closed fractures. Eight of the patients who developed fever died. In 4 cases the cause of death was meningitis.

In a number of the febrile cases the temperature was of a moderate degree and the cause of it could not be established. In 1 case it continued for two days. Except that it persisted somewhat longer than usual, it approximated the initial reaction that is seen frequently and would not have attracted attention if the author had not been making a special study of this type of case.

In one fatal case an excessive degree of fever was associated with an extensive cranial fracture and widespread disorganization of the intracranial contents. In 2 other fatal cases the probabilities were very strong that there was considerable intracranial hæmorrhage, but in neither was there any indication of an infectious process or any complicating condition which would account for the irregular temperature.

In 1 case fever was associated with a compound fracture. The scalp wound had been sutured immediately and apparently had healed by primary intention. As no other cause for the fever was found, the author believed that an infection was present in the wound and was successfully combatted by the natural powers of the body.

An interesting case cited was that of a child of 6 years who sustained a fracture in the posterior fossa of the skull. Nothing extraordinary was noted at the time of the patient's admission to the hospital, and there were no signs of disturbed neurological function. Fever of a slight degree was present from the beginning and by the fifth day it had risen to 102.4 degrees F. During routine examination a laceration was discovered in one drum-head, and as it had been stated positively in the history that there had been no preceding affection of the ear, it seemed logical to suppose that the fracture had opened into the middle ear and had become infected secondarily. The otitis subsided very quickly and in ten days after the injury the perforation in the drum-head had closed completely. On the thirteenth day the temperature reach 104 degrees F. Lumbar puncture was done and repeated two days later. Except for some increase of pressure on the first tapping the procedure yielded negative results.

During the second week the following neurological signs developed rather slowly and irregularly: (1) a weakness of one facial nerve; (2) a convergent squint; (3) a slight twitching of the left upper extremity; (4) a very slight retraction of the head with moderate rigidity of the neck which could be forcibly overcome; (5) a tendency to a Kernig on the right side; and (6) irritability. No abnormality was discovered in the chest or abdomen and no focus of infection was demonstrated in the limbs. In the third week the temperature gradually subsided to normal, the signs and symptoms gradually disappeared, and a perfect recovery resulted.

The question in this case was whether the child had had a basilar meningitis from which it had recovered, or whether the fever was due to some other cause. The probabilities of a meningitis were much strengthened by the fact that the child was admitted to the hospital a short time after the termination of the influenza epidemic. At the same time that this patient was in the hospital another child was admitted to the same ward who presented a similar clinical picture. In the second case death resulted and an autopsy revealed a basilar meningitis with a shaggy, greenish exudate in the smears of which organisms resembling the influenza bacillus were demonstrated.

Fever occurred also in 2 cases as a reflection of some complicating condition. The most important was meningitis.

In some of the cases operated upon fever was present both before and after operation and in others only after operation. When excessive fever developed after operation there was never any conclusive proof that it was due directly to the operative intervention, and in all probability the nature of the injury and the resultant pathologic changes contributed largely, if not entirely, to the pyrexia.

In 1 case fever occurred after lumbar puncture. A child sustained a fracture in the parietal region. On admission the patient was drowsy, but otherwise exhibited no definite symptoms of a focal lesion. Twenty-four hours later there were indefinite signs referred to the lower extremities; the power of the left seemed to be impaired and the right was somewhat spastic. Lumbar puncture was done and bloody fluid released from the spinal canal. Up to this time the temperature had been normal, but immediately thereafter it began to rise and in twenty-four hours it reached 101.4 degrees F. Operation done at this time demonstrated extradural bleeding over an intact dura and was followed shortly by death.

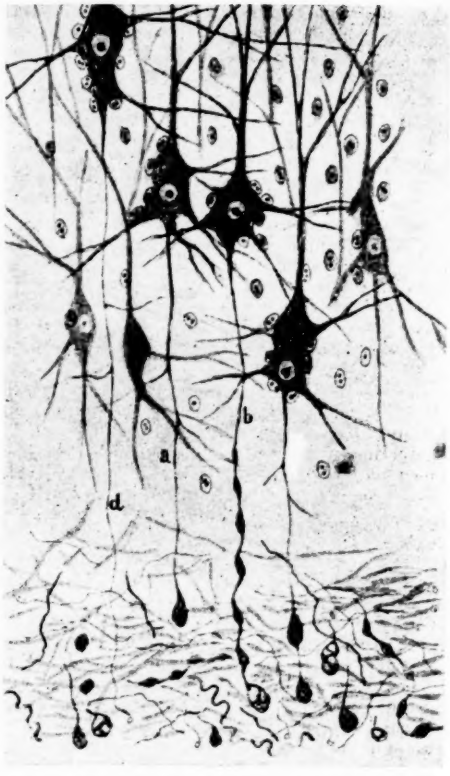
From a study of these cases the author concludes that fever associated with injury of the skull is much more common than a perusal of the literature would lead us to suppose. In the obscure cases the mechanism for the appearance of the fever is believed to involve disturbances of the heat-regulating centers.

In the consideration of the mechanism of fracture of the skull with intracranial injury attention is attracted to the fact that when a communication is established by dural laceration with the subarachnoid space cerebrospinal fluid must be released into the adjacent tissues. This is analogous to the release of cerebrospinal fluid by lumbar puncture, and it is therefore not unreasonable to assume further that in the presence of some hidden or dormant focus of infection in the body, either nearby or at a distance, fever would follow. This assumption offers a very satisfactory explanation of the sudden and sharp rises of temperature sometimes observed following decompression or other cranial operations in which the dura is opened and cerebrospinal fluid is released from the subarachnoid space.

In the author's opinion the fever may be accounted for by any one of the factors mentioned in this paper. G. W. HOCHREIN.

Urrua, M.: Investigations Regarding the Earliest Degenerative Changes in Traumatic Lesions of the Cerebrum (Algunas investigaciónes de los phenomenos mas precoces en la degeneración traumatica del cerebro). *Med. Ibera.*, 1920, x, 65.

By means of a special technique the author has been able to observe certain very early microscopic changes following experimental traumatic lesions of the cerebrum of adult chickens. Cerebral punctures are made by means of very fine scalpels and the chickens killed at intervals of one, two, or three hours. Pieces of tissue are fixed in formalin, washed in water, and left in an alcohol-ether mixture for ten minutes. They are then warmed in a 1 per cent solution of potassium ferrocyanide and washed and warmed in a 2 per cent silver nitrate solution to which a few drops of gum arabic or protargol solution have been added. The sections change to a coffee or sepia color. They are next placed in a hyposulphite solution and then in water. After dehydration in alcohol they are cleared in creosote and mounted.



Changes in axones of cerebrum one and one-half hours after trauma.

On microscopic study of sections prepared in this way three distinct zones are seen: first, the zone next to the lesion which consists of coagulated blood, fibrin, torn axones, and nerve fibers; second, the intermediate and most interesting zone, in which the earliest degenerative changes are found; and last, a zone of normal tissue. The following degenerative changes are seen in the intermediate zone:

Changes in the neurones themselves are not marked because of the shortness of the time elapsing before the fowls were killed. Incipient degenerative changes consist of the condensation of cords of neurofibrillæ and the early appearance of vacuoles. The cells next to the lesion first lose the fine texture of the neurofibrillæ.

The first change in the proximal ends of severed axones is the appearance of a clubbed extremity called the "sphere of retraction" ("a" in illustration). When the sphere of retraction is quite large,

fusiform enlargements occur along the whole course of the axone and give it a beaded appearance ("b" in illustration). Other axones become more delicate and terminate in a fine ring at the severed end ("d" in illustration). Retraction spheres next develop hyaline zones resembling vacuoles. Still later, delicate fibrillæ representing attempted regeneration bud out. In the absence of the sheath of Schwann, however, these regeneration tendrils soon atrophy for lack of guiding and nutritive substances. Later the retraction spheres lose their regenerative buds, become hyalinized, and disappear. W. R. MEEKER.

Oppenheimer, S.: Some Remarks on Sinus Thrombosis in Children. *Arch. Pediat.*, 1920, xxxvii, 65.

The greatest problem of sinus thrombosis in children is its early diagnosis. This is nearly always difficult and often impossible.

There are two recognized forms of thrombosis, primary or marasmic, and secondary or infective. The former is found almost invariably in the longitudinal sinus, rarely in the lateral sinus, and still more rarely in the cavernous sinus. It occurs in the extremes of life, and exhausting disease, such as diarrhœa in infants, is often the basic condition. The diagnosis is seldom made before death.

Infective thrombosis is the more frequent and follows the extension of an inflammation from parts contiguous to the sinus wall. It occurs in the sinus nearest the seat of the primary lesion, which most often is in the middle ear. The pathology of this type of sinus thrombosis and the variations in child and adult anatomy which influence the disease are discussed in full.

Fever of a very septic type is the most important general symptom of sinus thrombosis, and a two-hour record should be taken in order to note the variations accurately. Older children may have headache. In some cases there may be a unilateral enlargement of the lymph nodes at the juncture of the facial and internal jugular veins. This and postmastoidal œdema are valuable signs. Enlargement of the retropharyngeal lymph glands may cause a dysphagia. In some cases optic neuritis is present.

A positive blood culture is absolute evidence that the organisms have entered the circulation and an indication for immediate operation.

The prognosis depends upon the duration of the condition before operation.

The article is concluded with a brief description of the operations for sinus thrombosis.

K. L. VEHE.

Broders, A. C.: Squamous-Cell Epithelioma of the Lip: A Study of 537 Cases. *J. Am. M. Ass.*, 1920, lxxiv, 656.

The author gives a very complete analysis of 537 cases of squamous-cell epithelioma of the lip. The series represents 26.85 per cent of 2,000 cases of general epithelioma.

The disease is found in the proportion of 49 to 1 in males and females respectively, and at an average age of 57.3 years. As a class, farmers are most often affected. Family history and injury are negligible factors. The duration of the lesion prior to operation showed a wide variation, the shortest being 0.08 years and the longest 28 years. The average was 2.58 years. The size of the lesions also varied greatly. The growth was situated on the lower lip in more than 95 per cent of the cases and in a slight majority was on the left side. It was rarely found at the angles of the mouth.

Smoking, especially pipe smoking, seemed to bear a definite relation to the disease, although approximately one-fifth of the patients did not use tobacco. This proportion of users and non-users held among 500 patients without epithelioma whose average age, however, was nineteen years less than that of the patients with epithelioma of the lip. The results after operation in the cases of tobacco users were not quite so good as among the non-users. Thirty per cent of the patients with inoperable growths did not use tobacco.

It is of interest to note that cases not treated with caustics and by measures other than surgery gave better postoperative results and fewer metastases than those which had received such treatment. Metastasis was found in 19.48 per cent of the untreated cases and in 31.91 per cent of those treated prior to operation.

The growths removed were examined with regard to the degree of cell differentiation and the number of mitotic figures present, and on the basis of these data were placed in four grades. This gave a working basis on which to judge the degree of malignancy. The percentages of cases in the four grades were, respectively: Grade 1, 15.82 per cent; Grade 2, 62.01 per cent; Grade 3, 21.04 per cent; and Grade 4, 1.11 per cent.

The tumors of Grade 1 were of the smallest average size. None of these patients died from epithelioma of the lip. The majority of the epitheliomata were found to have been preceded by ulcer or a sore of some kind. This was especially notable in the tumors of Grade 2. Tumors of Grade 4 had no preceding history of ulcer. All patients with tumors of this grade died from epithelioma and none of those who were operated upon was without metastasis.

Of the patients operated on for epithelioma of the lip at the Mayo Clinic and traced, 40.52 per cent are dead. When lymph nodes were removed metastasis was demonstrated in 23.38 per cent; the submaxillary nodes were involved in 87.61 per cent of these. Tumors which produced metastasis were usually larger in size and of longer duration than those which did not.

Of the patients with metastasis, 82.6 per cent are dead. Of those without metastasis, 76.26 per cent are living and 92.71 per cent of these report a good result. Of the patients who had metastases only those who had involvement of the submaxillary nodes on one side reported a good result. No patient

with involvement of the cervical glands or of more than one group of glands survived. Of the patients who died with metastases, 91.6 per cent died from epithelioma.

The author estimates that a patient with only unilateral involvement of the submaxillary lymph nodes has a 1 to 3 chance of obtaining a good result and a life expectancy of 6.18 years after operation. Some other malignant neoplasm was associated with the epithelioma of the lip in 0.93 per cent of the cases.

J. W. Ross.

De la Presa y Vazquez, J. L.: The Treatment of War Fractures of the Mandible (Tratamiento de las fracturas de guerra del maxilar inferior). *Rev. españ. de cirug.*, 1919, i, 723.

From an extensive review of the literature and many of his own cases in the recent war the author draws the following conclusions:

The fracture fragments should be immobilized early and preferably by means of the d'Angle apparatus. This apparatus is especially valuable for complicated cases in which there are two or more fractures. It consists essentially of two bands of thin metal and a screw fitted with a nut. A band is adjusted around a firm tooth and held firmly by screwing on the nut. Several bands may be applied or a single large band to include several teeth may be used with silver wire at the interdental spaces to secure alignment.

The mouth should be carefully washed and hæmostasis and drainage of the buccal cavity maintained at all times. Further surgical procedure should be delayed until the resistance of the region is increased by means of liquid diet and other general measures. No attempt should be made to suture the integument or any of the soft parts as such measures predispose to infection and sphacelus even when the suturing is done a week after the injury.

Fractures of the horizontal rami are distinguished by their mobility and a tendency to pseudarthrosis. Those of the ascending ramus are characterized by immobility and a tendency to trismus. The latter usually heal spontaneously, effective apposition being maintained by the masseter and pterygoid muscles. Pads and bandages are not sufficient to assure absolute immobilization and should be used only in conjunction with more efficient methods of obtaining internal support. Osteosuture should not be done when the loss of bony substance exceeds 2 cm. It is better to immobilize the fragments and re-establish the continuity of the mandible at the expense of interdental apposition with bone transplants. Osteoperiosteal transplants used according to Delagenière's method are the most satisfactory. While cartilaginous transplants used according to Moresli's method would probably give better cosmetic results, they are more difficult to apply and result in less bone regeneration.

Pseudarthroses may be corrected either by surgical intervention at the focus with subsequent immobilization by means of an osteoperiosteal graft or the application of the Vilaine type of braces and wires. The majority of cases of trismus are myopathic in origin and should be treated by continued forced extension. When the lesion is osteoarticular in origin resection of the condyle with the interposition of fascia is indicated.

W. R. Meeker.

Ivy, R. H.: The Operative Treatment of Ununited Fractures of the Mandible. *Ann. Surg.*, 1920, lxxi, 363.

Ivy reports 22 cases of non-union following gunshot fracture of the mandible which he observed at the Walter Reed Hospital. These cases came to operation after the lapse of periods ranging from six to seventeen months following the original injury.

In 21 there was free mobility between the fragments, and in 1, firm fibrous union in a very bad position which was complicated by a large loss of substance.

Of the 22 cases operated upon, the body was involved in 11, the symphysis in 3, the symphysis and the body in 2, the angle in 3, the angle and ramus in 1, and the ramus in 2.

The object of treatment in such cases is restoration of the function of mastication. This was obtained by restoring occlusion of the teeth and filling in the lost bone.

For restoring the lost bone substance three types of grafts were used: (1) a pedicled bone graft obtained from the mandible itself; (2) an osteoperiosteal graft from the tibia; and (3) a graft from the crest of the ilium.

Of a total of 25 operations, 19 (76 per cent) were successful. In 4 of the failures complete regeneration did not occur, and in 2, there was suppuration.

M. N. Federspiel.

NECK

Bouman, H. A. H.: The Early Diagnosis of the Malignant Thyroid—Especially Carcinoma. *Minnesota Med.*, 1920, iii, 105.

The general signs of malignant goiter, cardiovascular disturbances, tremor, exophthalmos, and rapid loss of flesh, vary according to the functional change in the gland.

Latent thyrocarcinosis, like latent cancer of the stomach, is seldom diagnosed. The most frequent symptom is a continuous loss of strength associated with a normal appetite and digestion. Careful questioning usually elicits the fact that the goiter has slightly increased in size as evidenced by an uncomfortable pulling and drawing in the thyroid region. Pain, however, is absent. The loss of flesh is gradual. Ultimately neuralgic pain develops and there is some difficulty in respiration with light attacks of a smothering sensation when the recumbent position is assumed. At this stage it is still possible for the patient to take a fair degree of

exercise without stopping to recover his breath and, except for the loss of flesh and strength, he does not regard himself as ill. The most careful search usually fails to disclose the cause of the general symptoms.

Less frequently, but sufficiently often to attract attention, disturbances of the heart, such as palpitations and arrhythmia, occur. The heart beats are usually regular, but suddenly two or three precipitated beats come in intermittent fashion. Symptoms simulating angina pectoris are observed. Fever is absent, but there may be peculiar disturbances of the nervous system with vertigo, temporary loss of vision, and disturbed mentality. In all cases lesions of the peripheral nerves are manifested by neuralgic pains which are variable in degree, character, and location. There are occipital pains, lumbago, pain resembling that of acute pneumonia, and bilateral neuralgia of the neck and shoulders radiating from the thyroid.

At a more advanced stage cachexia becomes established. Properly, this is only a more marked degree of loss of flesh and weight. Pallor is marked and the mucous membranes are pale. The complexion is subicteric, but the eyes do not become yellow. Hæmorrhage is not noted except through generalizations established in vital organs such as the lungs or kidneys. Œdema of the extremities is an invariable and early symptom. Some patients suffer dysphagia and experience great thirst. There is no leucocytosis and local symptoms are often masked by the general manifestations. In most of the cases observed, however, a swelling of the gland had become apparent in less than eighteen months but the most important fact was the increasing hardness of one or more nodes embedded in the softer parenchyma of the gland.

In the absence of a goiter the disease may manifest itself somewhat differently. In the thyroid region a small tumor appears which at first grows quite slowly, but later more quickly. In the beginning the only significant factors are the patient's age, the growth of the tumor, pain, and a light dyspnœa, but these are sufficient for a diagnosis if the frequency of cancer and the rarity of goiters in the old are borne in mind. E. C. ROBITSHEK.

SURGERY OF THE CHEST

CHEST WALL AND BREAST

Strachauer, A. C.: A New Operation for Pyothorax: The Trephine Operation. *Minnesota Med.*, 1920, iii, 127.

The trephine operation for pyothorax was first performed six years ago. A short incision is made over and parallel to the rib at the site selected for drainage. The rib is trephined, the posterior periosteum and parietal pleura are incised crucially through the bone hole, and a stiff, very snugly fitting rubber drainage tube the same size as the trephine is inserted to make an air-tight joint. The tube must not impinge upon the lung. It is brought through a small opening in a square of dental rubber dam the edges of which are fastened to the skin with adhesive tape. A few turns of adhesive tape are put around the tube to hold it in position. A negative-pressure and irrigation apparatus is then attached to the drainage tube.

The operation has the following important advantages:

1. Trephining a rib is much more simple than resection.
2. Multilation, deformity, and spur formation with fixation to the adjoining ribs are avoided.
3. Continuous and even negative pressure may be maintained and in this way pneumothorax and its attendant evils may be prevented.
4. The negative pressure aids in the expansion of the compressed lung and the obliteration of the cavity.
5. The function of all the non-consolidated portions of the lung is conserved.
6. All discharges are collected in the receiving bottle, which obviates the necessity for repeated dressings and increases the patient's comfort and cleanliness.
7. The suction prevents the accumulation and retention of pus in the pleural sac and the absorption of the toxins.
8. The chance of introducing secondary infections is less than in open drainage.
9. Provision is made for the germicidal and solvent action of Carrel-Dakin irrigation.
10. When the infection has subsided and the pleural sac has become sterilized, a functionating lung capable of filling the thoracic cavity has been preserved. C. R. STEINKE.

Manson, F. M.: The Treatment of Empyema by a Closed Method. *Minnesota Med.*, 1920, iii, 124.

This article is based on 177 cases of empyema treated at Camp Dodge. Various methods were tried. In 65 cases treated by early rib resection the mortality was 54 per cent, while in those treated by repeated aspiration and deferred thoracotomy it fell to 32 per cent. Forty-three cases were treated by repeated aspiration and the injection of a 2 per cent solution of formalin-glycerin. Not one patient was cured by aspiration alone. Following a simple intercostal thoracotomy and the insertion of a $\frac{5}{8}$-in. rubber tube with a negative pressure attachment 4 of 29 patients recovered. Nineteen were treated later by the Mozingo technique. This technique was as follows:

Under novocaine anæsthesia a small incision was made in the skin over the cavity as determined by

preliminary aspiration and a 7 mm. trocar with cannula was introduced into the pleural cavity. The trocar was then withdrawn, the cannula being left in place until after the introduction of a No. 24 French catheter with one terminal and two lateral openings. The pus was then withdrawn with a 30-ccm. Luer syringe, care being taken to prevent the entrance of air by clamping the tube before disconnecting the syringe. After the pus had been withdrawn, from 20 to 50 ccm. of Dakin's solution were injected into the cavity and sucked in and out to dissolve the fibrinous mass. The cavity was then nearly filled with Dakin's solution which was allowed to remain from ten to thirty minutes.

The treatment described was repeated from four to six times in twenty-four hours, depending on the patient's condition and the rapidity with which the pus accumulated. The tube was kept clamped except during aspiration and injection. All cases were controlled by laboratory count. When smears of the discharge were free from micro-organisms—usually in from ten to fourteen days—the period between treatments was extended to twelve hours and after each irrigation from 10 to 50 ccm. of a 2 per cent solution of formalin-glycerin were injected and left until the next treatment. The process was then repeated. As soon as the discharge became sterile to culture and the cavity had diminished to a capacity of from 15 to 20 ccm. the tube was withdrawn and the opening allowed to heal.

Of the 43 patients treated by this method all were cured of empyema and only 1 required a secondary operation. The average time between operation and the closing of the wound was thirty-one days. The shortest time was sixteen days. Thirty-seven of the patients had been subjected to repeated aspirations previously or had been treated by some form of thoracotomy. The mortality was 4 per cent. Manson believes that if only the closed method had been used even better results might have been expected.

Among the advantages of the operation described are absence of pain, tenderness, and the formation of scars, and the fact that it permits the attainment of full chest expansion. C. R. STEINKE.

Riesman, D.: Pleural Effusion with Inversion of the Diaphragm Producing an Abdominal Tumor: Together with Remarks on Acute Pulmonary Œdema following Tapping. *Am. J. M. Sc.*, 1920, clix, 353.

The author reports an interesting case in which pleural effusion was so extensive that the diaphragm on the affected side became inverted, forming a sac within the abdomen.

The patient, a woman of 77 who for years had had diabetes and chronic nephritis, was suddenly taken with acute indigestion. This was followed by marked dyspnœa, cyanosis, and a marked increase in the pulse rate.

On examination a large, tense, rounded mass was felt in the left upper quadrant of the abdomen. The entire left chest was flat and the apex beat was found just inside the right nipple line.

The removal of 5 pints of fluid from the chest by tapping caused the disappearance of the abdominal tumor. Following the tapping pulmonary œdema developed, but yielded to hypodermic injections of morphine and atropine and dry cupping.

The patient completely recovered and at the present time is well.

The article is concluded with a brief review of the literature. P. M. CHASE.

Perthes, G.: The End-Results of the Treatment of Cancer of the Breast Before and After the Introduction of Prophylactic X-Ray Treatment following Operation (Erfolge der Brustkrebsbehandlung vor und nach Einfuehrung der prophylaktischen Roentgenbestrahlung der operierten Faelle). *Zentralbl. f. Chir.*, 1920, xlvii, 125.

Group 1 of the cases reviewed comprised 130 cases which were operated upon between 1910 and 1912 and were not treated with the X-ray. Recurrence developed in 27 per cent within the first year and in 47.5 per cent within three years. In 4 cases the recurrence did not develop until the sixth year, a fact which demonstrates that the five-year limit arbitrarily adopted for the study of the results of treatment in such cases is not sufficient to exclude the possibility of recurrence.

Groups 2 and 3 comprised 144 cases insufficiently treated with the X-ray. Recurrence developed in 38.2 per cent within the first year and in 54 per cent within the first three years. Only 20.3 per cent were free from recurrence after the five-year limit.

Group 4 comprised cases treated with intensive X-ray dosage during the years 1917 and 1918. Of 72 cases in which the operation was performed at least one year ago 41 per cent showed recurrences within the first year. In 18 per cent, however, the recurrence took place outside of the operative and X-ray field.

The conclusions drawn are that the prophylactic treatment of cancer of the breast after operation has not improved the results to date and that to obtain such improvement more powerful and intensive raying is necessary. L. A. JUHNKE.

TRACHEA AND LUNGS

McCrae, T.: The Physical Signs of Foreign Bodies in the Bronchi. *Am. J. M. Sc.*, 1920, clix, 313.

Unrecognized cases of foreign bodies in the bronchus are by no means rare. In numerous instances the presence of a foreign body is unsuspected for months and even years. In some acute cases a diagnosis of pneumonia is made and in other instances a chronic condition has developed which is diagnosed as tuberculosis or bronchiectasis.

The physical signs due to a foreign body in a bronchus are very diverse and may change in a short interval of time because of a change in the position of the foreign body. It is not uncommon to find

signs over both lungs and in some cases they are more diffuse on the unaffected side.

The only sign the author has noted in every case is decreased expansion of the affected side.

What is described as the "asthmatoid wheeze," heard by holding the bell of the stethoscope before the patient's mouth, is present in a considerable number of cases, as are also fine "tissue-paper râles." Certain foreign bodies, especially the peanut, may cause acute and dangerous changes, "arachidic bronchitis."

The presence of a foreign body should be taken into consideration in every case of pulmonary abscess and bronchiectasis and in all cases in which there are signs in a lower lobe for which there is no evident explanation. S. S. HOWE.

Heuer, G. J., and Dunn, G. R.: Experimental Pneumectomy. *Bull. Johns Hopkins Hosp.*, 1920, xxxi, 31.

In the course of experiments relating to thoracic surgery carried on with many interruptions during the past six years by Cave, Holman, and the authors, they have had occasion to remove entire lungs from 23 dogs. It seemed to them of interest to assemble the results and study them from various viewpoints: (1) to discover the effects of total pneumectomy upon the pulse, blood pressure, and respiration; (2) to determine the results obtained in the treatment of the bronchial stump by various methods; (3) to observe the reaction on the part of the pleura upon the pneumectomized side—meaning by reaction the development or the absence of a pleural effusion; (4) to follow the fate of the intrapleural cavity resulting after removal of the lung and the methods obliterating it; (5) to observe the reaction on the part of the remaining lung—by reaction meaning the development or absence of a simple enlargement associated with dilatation of the alveoli analogous to emphysema; a hypertrophy; or a hyperplasia; and (6) to estimate the probable duration of life in animals after a total pneumectomy.

These various aspects of the subject are of predominant importance in lobectomy in man and although they have been the subject of previous experimental work, agreement in the results has so far been lacking.

The technique employed was very uniformly as follows:

1. Intratracheal anæsthesia was induced with a positive-pressure apparatus.

2. In view of the infectious complications following previous experimental work, the skin was cleaned with the greatest care. After it was shaved and washed with soap and water, it was washed with alcohol and dried; then washed with pure carbolic acid and again with alcohol. If the original scrubbing of the skin was not so vigorous as to cause multiple bleeding points, the skin did not suffer from this vigorous treatment and rarely showed even the slightest dermatitis.

3. An intercostal incision was made upon the left side, preferably in the fourth or fifth interspace. The chest was opened widely and the wound held apart with a rib spreader. The lung was drawn into the wound, the pulmonary arteries and veins at the hilus were individually isolated, doubly ligated with silk, and divided. The main bronchus or its main branches were isolated and stripped of all lung tissue. The bronchi were then divided and the lung removed. The divided bronchi were closed by various methods. Before closure a culture was usually made from the mucous membrane just below the bifurcation of the trachea in order to determine the bacterial flora in the upper air passages. The closed bronchial stump was dropped back into the pleural cavity without any attempt to cover it with a fold of the pleura or pericardium. The wound was closed in layers with silk without drainage, the two ribs adjacent to the incision being brought together with encircling sutures. The skin incision was covered with a simple collodion dressing. Before closure of the thoracic wall, the remaining lung was distended to its normal capacity.

Of 23 dogs on which total pneumectomy was done 13 recovered and 10 died. The fatalities occurred in from four days to two months after operation. Six of the deaths were due to an epidemic of distemper which swept through the kennels during the earlier period of the experimental work. The autopsy examinations in this group did not show a single case of infection of the parietal wound or pleura or any leakage from the bronchial stump. One animal died of a simple pneumonia unassociated with other evidences of distemper. At autopsy there was no infection of the parietal wound or pleura and no leakage from the bronchial stump. One animal died two months after operation, apparently from starvation. At autopsy a remarkable degree of emaciation was noted but no other cause to which the death might be assigned. There was no infection of the parietal wound or pleura and no leakage from the bronchial stump. Two animals died of acute pneumothorax, the result of leakage from the bronchial stump. In one of these the failure to secure adequate closure of the bronchial stump was intentional. In the other a necrosis of the bronchial wall followed the application of an intentionally flattened (not rolled) metal band.

It seemed to the authors of interest also to determine whether or not total lung excision seriously affects the future life of animals subjected to this operation. A number of the dogs so treated were therefore kept under observation for a year and exposed to the same vicissitudes of existence as other animals. So far as could be determined they were active, healthy, and free from dyspnœa, and they held their own with the other animals. Only one animal apparently suffered as a result of the removal of the lung. This dog avoided the others, was not so eager at feeding time as they, and had periodic attacks of dyspnœa. With this exception, it seemed evident that the excision of one lung did

not affect the activity of the animals or the duration of their lives.

One of the animals became pregnant several months after the operation and gave birth to a litter of seven healthy pups. This dog is still living.

G. E. BEILBY.

PHARYNX AND ŒSOPHAGUS

Bullrich, R. A.: A Causative Factor of Cancer of the Œsophagus (Un factor determinante del cancer del esofago). *Semana méd.*, 1919, xxvii, 15.

Cancer of the œsophagus is very common in the Argentine Republic. In a review of the literature the author found that the great majority of the patients came from the interior of the Republic. "Mate" is a national drink in the Argentine and used extensively in the interior of the country. To make it the water is brought to the boiling point and then poured over the herb. The drink is taken immediately while it is still very hot. Any one who is not used to it burns his hands on the dish, burns his lips on the tube through which he drinks it, and burns his tongue and œsophagus at the first swallow. The peasants, who are accustomed to the mixture, are amused at its effect on those who take it for the first time but they do not know that this repeated trauma may be the point of origin for the fatal dysphagia which is so common among them.

Since 1914 Bullrich has kept a record of his cases. Sixteen of his patients were males and three females. Their ages were as follows: between 30 and 40, one; between 40 and 50, eight; between 50 and 60, seven; between 60 and 70, two; and between 70 and 80, one. By nationality 13 of them were Argentinians; 2, Russians; 2, Spaniards; 1, an Italian, and 1, a Paraguayan. Therefore 13 were natives and 6 were foreigners. All but one of them came from the interior of the country. Thirteen were farmers, one was a mason, one a carpenter, one a cook, two were without work, and one was a servant. All of them had drunk mate for years.

In seventeen of the cases the cancer was situated in the upper third of the œsophagus, and in two in the lower third. This may be explained by the fact that the upper third is more exposed to the traumatism from the hot water than the middle and lower thirds.

Bullrich mentions also two cases of dysphagia in patients who were not mate drinkers. One of these patients had a hysterical œsophagism and recovered spontaneously. The other died and the autopsy showed the œsophagus to be involved and compressed by a group of fibrocancerous glands.

M. M. MATTHIES.

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Cosens, W. B.: The Cause and Treatment of Abdominal Hernia. *Practitioner*, 1920, civ, 220.

During the last five years the author has been in medical charge of a camp of German prisoners of war and has kept notes regarding the condition of the 27,635 men examined. He believes that the explanation given by many of these prisoners that they had to perform manual labor to which they were unaccustomed truthfully explains the causation of their herniæ. Congenital and acute herniæ are due to incompetent muscular action and intra-abdominal pressure. Lack of resistance is due to: (1) anatomical deficiency; (2) loss of nerve power from disease or senile change; (3) deficiency of muscular control caused by lack of physiological use or by nerve disability.

Preventive treatment consists of keeping the abdominal muscles in a state of efficiency by daily drill in keeping the rectus and oblique muscles in a slight degree of tension. Especially in children deep breathing exercises are invaluable.

The application of trusses is too frequently done crudely. Cosens describes what he considers the correct method.

In the operative treatment it should be borne in mind that in many of these cases the muscles are inefficient and unable to act as a permanent block to the descent of the intestine. True resistance may be obtained by producing adherence of fascia to fascia.

E. C. ROBITSHEK.

Northrop, H. L.: The Radical Cure of Femoral Herniæ by the Inguinal Route. *Hahneman. Month.*, 1920, lv, 187.

In order to bring about a radical cure of a femoral hernia, Poupart's ligament must be approximated or attached to the underlying horizontal ramus of the pubic bone, i.e., the pectineal fascia covering it. This latter structure, however, is far from sufficiently substantial to fix Poupart's ligament securely and permanently to the underlying pectineal fascia, particularly if there is pressure of the abdominal viscera above and behind tending to separate these structures still further and precipitate a recurrence of the hernia. The author has endeavored to overcome this difficulty by employing the inguinal route in the treatment of femoral hernia.

By the inguinal route two substantial fibrous structures are approximated and secured under the guidance of the eye, namely, Poupart's ligament and Cooper's ligament. The following technique is employed:

1. An incision is made through the skin and fascia, exactly as in an operation for an inguinal hernia.

2. The aponeurosis of the external oblique is divided in the direction of its fibers.

3. The upper flap of the external oblique aponeurosis having been raised, the conjoined internal oblique and transversalis are brought into view. A retractor is then slipped under these muscles and used to retract them upward. Another retractor is passed under the lower flap of the external oblique aponeurosis, which is drawn downward, bringing Poupart's ligament into full view. The round ligament of the spermatic cord is retracted upward. Good retraction exposes the transversalis fascia. This is nicked, divided bluntly along the line of the original incision, and then picked up with retractors exactly like the other structures. The peritoneum and neck of the sac are also brought into view. The deep epigastric artery is usually encountered during this stage and may be drawn aside or, if it runs an anomalous course, divided between ligatures.

4. The peritoneum having been opened, the hernial contents are pulled up out of the sac, replaced in the peritoneal cavity, and if necessary, held there with a gauze pack. If the intestine or omentum is strangulated, it may be liberated with ease by cutting Gimbernat's ligament. If the contents are adherent, the sac may not be adherent to the tissues of the thigh (almost always the case) or it may adhere to its bed. In the first instance traction on the hernial contents pulls the entire sac out of its bed, converting the femoral hernia into an inguinal hernia. In the second instance the incision should be extended downward on the thigh, over the protrusion, and the sac dissected free from its adhesions.

5. A dressing forceps is introduced into the sac, closed, and withdrawn upward. This everts the sac and converts a femoral hernia into an inguinal hernia. The sac is tied off with a ligature or suture. If the sac does not evert easily it is adherent and must be dissected from its bed by retracting the lower skin flap or incising downward.

6. The femoral ring is closed. The ring is exposed by retracting the lower flap of the external oblique downward and outward and retracting the skin, the upper flap of the external oblique, the tendon of the internal oblique and transversalis muscles, and the transversalis fascia upward and inward. When the parts are retracted the horizontal ramus of the pubic bone can be palpated and it can be seen covered by a dense, tough, white, glistening fascial band. This is Cooper's ligament. With a small, full-curved needle a kangaroo or chromic catgut suture is passed through Cooper's ligament deep enough to go down to the periosteum of the pubic bone and just inside of the iliac vein and then through the lower flap of the transversalis fascia and the edge of Poupart's ligament. Another suture is similarly placed internally to the first, and if necessary a third. The innermost suture always picks up Gimbernat's ligament. When these sutures are tied they approximate Poupart's ligament to Cooper's ligament and effectually close the hernial orifice.

7. The seventh step is the ordinary closure of an inguinal hernia.

The author has operated on 8 cases of femoral hernia by the inguinal route and believes it to be an ideal method. In none of his cases was he obliged to add the fourth step. In 2 cases there was strangulation requiring resection and anastomosis. This step, so difficult to perform when the old "femoral incision" is employed, was easily and successfully done by way of the inguinal route.

G. W. HOCHREIN.

Eisendrath, D. M.: The Inguinal Route in Femoral Herniotomy. *Surg. Clin. Chicago*, 1920, iv., 49.

The sac of a femoral hernia protrudes from the transversalis fascia and parietal peritoneum close to the inner aspect of the femoral ring. After entering the ring itself and the femoral canal, the sac and its contents are in close relation to Cooper's ligament and the pubic bone behind, Poupart's ligament in front, the femoral vein on the outer side, and Gimbernat's ligament on the inner or mesial side. The sac then descends beneath Poupart's ligament in the space known as the femoral canal on the inner or mesial side of the femoral vein and comes to the surface through the saphenous opening.

The details of femoral herniotomy by the inguinal route are given as follows:

1. The inguinal canal is opened as for the repair of an inguinal hernia. The author prefers to carry the incision dividing the external oblique aponeurosis through the internal pillar of the external ring as this makes it possible to cover the cord more completely in the last step of the imbrication method of Andrews. The canal and the spermatic cord having been opened, the inner half of the external oblique and the internal oblique are held inward, the outer half of the external oblique and skin flap are held outward and the sac of the femoral hernia is separated from the fat and other tissues of Scarpa's triangle. To facilitate the dissection it may be necessary to make a vertical incision downward from the original incision and over the femoral swelling. The sac having been freed as high as possible, it is opened and its contents are examined.

2. The contents of the sac are reduced through an incision which, if necessary, may be carried clear to the neck of the sac. Such high exposure affords better access to the point of strangulation and gives more space for an intestinal resection than the older methods.

3. The adherent omentum is freed from the neck of the sac, the empty sac is pulled upward through the femoral ring, a high ligation of the sac is done, and the distal portion is removed.

4. The external iliac vein is now retracted outward and the inner aspect of the femoral ring exposed. This is obliterated by three chromic catgut sutures, two of which are passed through Cooper's and Poupart's ligaments and the third through Cooper's and Gimbernat's ligaments.

5. The inguinal canal is closed by the Bassini method or the Andrews imbrication method and the skin is closed in the usual way. I. W. BACH.

Cates, B. B.: A Further Note on an Operation for the Radical Cure of Femoral Hernia. *Am. J. Surg.*, 1920, xxxiv, 90.

More than ten years ago in an emergency operation for strangulated femoral hernia with gangrene of the ileum in the sac the author cut through Poupart's ligament in order to liberate the gangrenous bowel and secure ample working space for its resection. He closed the opening in the peritoneum and sewed Poupart's ligament to the pubic portion of the fascia lata. The patient, a man, has remained well and without recurrence for more than ten years. Since this first case the author has had occasion to use the same technique in 2 cases of strangulated femoral hernia in women. The technique was as follows:

A long incision was made in the skin from the spine of the pubis outward, below and parallel with Poupart's ligament. Two pairs of Mayo forceps were thrust into the femoral ring above the neck of the sac for a short distance and the falciform and Poupart ligaments divided for ½ in. Other forceps were then pushed in above the first pair and the tissues divided with the scissors. The wounding of important structures was avoided by sponging back the tissues and dividing between forceps. When anomalous obturator or deep epigastric arteries were divided they were held securely between the forceps and tied when most convenient. After the ligaments were divided the sacs were opened and the bowels replaced. After the contents of the sac had been replaced the peritoneum was pushed back with gauze for 1 in. or more above Poupart's ligament. The sac bore the same relation to the general peritoneum as the neck of a gourd to the body of a gourd. The narrowest part of the sac was tied with a double strand of No. 2 catgut on a Mayo needle and the redundant portion cut away. The remaining part was gathered on the catgut suture and, by thrusting the needle through the entire thickness of the abdominal walls, was sewed to the anterior surface of the abdomen as in the MacEwen operation for inguinal hernia. This last step of the operation was done entirely outside the peritoneal cavity. The operation was completed by sewing the inner end of Poupart's ligament to the pubic portion of the fascia lata with catgut and closing the skin incision with silkworm-gut sutures without drainage.

G. W. HOCHREIN.

Dutrey, J.: The Mechanism of the Peritoneal Absorption of Certain Solids (Mecanismode la absorción peritoneal de particulas solidas). *Semana méd.*, 1920, xxvii, 249.

To study the mechanism of peritoneal absorption, Dutrey injected different amounts of India ink into the peritoneal cavities of guinea pigs. In guinea pigs killed twenty-four hours after an injection of 1 ccm. of ink most of the granules were found in the omentum and diaphragm. When larger doses were injected a considerable amount was found in the omentum and diaphragm, the abdominal, paravertebral, mesenteric, and pelvic glands. The parabronchial lymph glands were also pigmented and the posterior side of the sternum showed the pigment in fine black lines.

When smaller amounts were given the omentum was loaded with the pigment and the diaphragm contained smaller amounts. The peritoneal surfaces were normal in appearance but the paravertebral glands, especially those situated behind the kidney, were pigmented. Very faint black lines were observed on the posterior surface of the sternum, but the pigment was not found constantly in the hilus glands of the lungs.

When doses of 1/10 ccm. of the India ink were injected, the greater portion of the pigment was again found in the diaphragm, but none of it could be discovered anywhere else except in the lymph glands behind the kidneys.

Whatever the size of the dose, the liver, spleen, kidneys, lungs, and other viscera showed no microscopic alteration whatever. In the mechanism of the absorption the leucocytes were thought to play the major rôle. Immediately following an injection into the peritoneal cavity an exudation occurred which diluted the ink. A microscopic study of the exudate showed that in the first few hours there were very few leucocytes, but these increased in number until, at the end of twenty-four hours, the ink granules had all been taken up. Under the microscope the cytoplasm of the leucocytes was found to be filled entirely with ink granules so that the nucleus could not be seen.

Dutrey's conclusions are as follows:

The lymphatic system and other closely related structures such as the omentum and diaphragm seemed the chief agents in the absorption of injected solids. The blood and vascular systems appeared to take no part in this absorption, particles of the India ink never having been found in the blood stream. A study of various organs such as the liver, spleen, and kidney revealed very few leucocytes filled with ink granules, a fact, which demonstrates that there are no direct avenues of absorption between the peritoneal cavity and these viscera. It is logical to assume that an injected substance is retained to a certain extent in the lymphatic system but that a portion eventually reaches the circulatory system by way of the thoracic duct, being thus distributed to various organs of the body. W. R. MEEKER.

GASTRO-INTESTINAL TRACT

Novak, E.: Polypoid Adenoma of the Stomach; Removal by Gastrotomy. *J. Am. M. Ass.*, 1920, lxxiv, 871.

Three types of gastric adenoma are found: (1) polypoid adenoma either single or multiple; (2) the polyadenoma *en nappe* of Menetrier which is

characterized by the involvement of large areas of stomach wall; and (3) the adenoma of the Brunner-gland type.

Little is known of the etiology of the condition although gastric catarrh is considered to be a predisposing cause. It is generally conceded that these growths have a strong tendency to become malignant.

Polypoid adenomata of the stomach occur in the advanced years of life and seldom cause any distinctive symptoms. The usual picture is that of chronic gastritis with severe epigastric pain.

The tumor is generally discovered during operation for some unrelated condition and is removed by incision into the stomach.

In the case reported by the author the growth was found during an operation for cholecystitis and removed by gastrotomy. The patient made an uneventful recovery. P. M. CHASE.

Coffey, R. C.: Gastro-Enterostomy Still the Treatment for Chronic Gastric and Duodenal Ulcers. *Ann. Surg.*, 1920, lxxi, 303.

The author presents the results of his operations for gastric and duodenal ulcers during the past fifteen years.

From 1904 to 1919 he operated upon 233 cases of gastroduodenal ulcer. There were 10 deaths, a mortality of 4.33 per cent. Other statistics show a mortality varying from 2.38 to 8.3 per cent. The causes of death in the author's 10 cases are given and the cases briefly discussed.

There were 9 instances of secondary or recurring ulcer. Of these, only 2 developed after a simple posterior gastro-enterostomy.

In 3 cases a late severe hæmorrhage developed: in 1, following simple gastro-enterostomy, and in 2, following the Eiselsberg procedure.

Carcinoma developed in only 4 cases of the entire series, in 3 instances following excisions.

The author's technique for gastro-enterostomy is described in full. The use of clamps and linen sutures perforating the bowel or stomach is avoided. As suture material Coffey prefers tannin catgut. One of the most important steps in the operation is the suturing of the mesentery borders to the stomach and intestines. This should be done so that no tension or torsion in either structure results.

In conclusion the author states that whatever the situation of the ulcer, it is best to do a gastro-enterostomy and await results. A radical operation may then be done if trouble develops. The mortality following excision after a gastro-enterostomy is practically nil, regardless of the procedure used.

P. M. CHASE.

Leotta, N.: Simple Ulcer of the Jejunum and Ileum (L'ulcera simplice della porzione digiuno-ileale dell'intestino tenue). *Arch. ital. de chir.*, 1919, i, 349.

Simple ulcer, known also as chronic ulcer, round ulcer, and trophic ulcer, was first described as a distinct morbid entity by Cruveilhier in 1830. It occurs commonly in the stomach and duodenum and less frequently in the lower end of the œsophagus, the large intestine and, following gastro-enterostomy, the loop of the jejunum, areas which come under the action of the gastric juice. In 8,060 autopsies Donati found gastric ulcers in 2.6 per cent but not a single case of simple ulcer of the jejunum or ileum.

Leotta has collected 21 authentic cases of ulcer of the jejunum and ileum from the literature and to these he adds one case of his own. The author's patient was a man 25 years of age who had always been in good health and who, following a dietary indiscretion, was suddenly seized with severe abdominal pain of a diffuse type associated with vomiting, diarrhœa, and slight fever. These symptoms continued for two days. At the end of that time he was brought to the hospital with all the symptoms and signs of diffuse peritonitis. At operation free gas and a seropurulent exudate were found in the abdominal cavity and a perforation of the ileum about 20 ccm. from the cæcum. The ulcer was clean cut and sharply punched out. There was practically no infiltration of the margins and no tendency to the formation of adhesions. No other lesions were demonstrable. Excision of the ulcer and closure of the bowel were followed by recovery. The Widal reaction on two occasions was negative. Microscopic examination of a portion of the excised ulcer showed it to have the characteristics of a simple ulcer of the stomach with no surrounding infiltration.

In most of the cases reported in the literature the ulcer was discovered after the patient had died from peritonitis due to perforation. In 3 cases it was found at operation which was followed by recovery. Peritonitis due to perforation was present in all of the cases.

Pathologically the type of ulcer described is single, round, clean cut, and punched out. It has narrow margins and is seldom surrounded by callous induration or infiltration. It must be differentiated pathologically and clinically from typhoid ulcers, the acute ulcer of gastro-enteritis, tuberculous, syphilitic, and neoplastic ulcers, and ulcers due to foreign bodies, infected emboli, uræmia, and nerve lesions. The etiology is not known and the symptoms are vague. The diagnosis made is usually peritonitis. This peritonitis simulates the peritonitis following typhoid perforation but is not associated with the picture of asthenia observed in the latter. I. F. VOLINI.

Coffey, R. C.: A Permanent Colostomy or Enterostomy Which May Be Closed by an Extraperitoneal Operation. *Ann. Surg.*, 1920, lxxi, 299.

The loop of gut is drawn through a rectus incision and the mesenteric borders of the two limbs are sutured together, space being left at the apex. Care is taken to suture the mesentery back of this

line to prevent a knuckle of gut from being incarcerated in the space. After the loop is sutured to the peritoneum, the muscles and the aponeurosis, a flap of skin ½ in. wide by 2 in. long is dissected up, thrust through the space at the apex, and sutured to the opposite skin edge. The wound is then closed. To avoid tension on the skin flap a rubber tube is passed over it under the bowel.

When it becomes desirable to close the colostomy, the septum, including the skin flap, is destroyed with pressure camps and the fæcal fistula thus formed is closed extraperitoneally. P. M. CHASE.

Soresi, A. L.: Technique of Appendectomy. *Ann. Surg.*, 1920, lxxi, 315.

The author proposes a technique for appendectomy in all acute cases which makes the operation safe, rapid, and easy of performance and gives very satisfactory after-results.

The method is based on the following principles:

1. Never look for the tip of the appendix, which is difficult or impossible to find, but search only and in all cases for its base, which can be found very easily, safely and quickly.
2. Keep away from the peritoneal cavity.
3. Do not use protective pads. Work always in the open, seeing exactly what you do and how you do it, and knowing that it is done as you want it to be done.

A pararectus incision from 8 to 10 cm. in length is made. The peritoneum is freed from any adhesions only on the external side, the inner edge being left untouched. The outer side of the cæcum is liberated and raised and the base of the appendix is located. The appendix is freed and a purse-string suture thrown around it. The appendix is divided between clamps, the stump inverted, and the purse-string suture tied. The remainder of the appendix is then removed, great care being taken not to break up adhesions. If the tip remains, no harm is done provided there is free drainage.

In the matter of drainage, paraffined-gauze strips are recommended as better than other material. The drains are inserted through stab wounds in the flank, or the vagina in the female, and never through the laparotomy wound. Thus they will come from the most dependent part of the cavity. Where they pass through the abdominal wall they are enclosed in a short paraffined rubber tube. The drains should not be changed frequently.

When necessary, the abdominal wall is drained by paraffined threads, one set just above the peritoneum, the other just above the aponeurosis and muscle layer. These are brought out through a stab wound just below the incision and enclosed in a rubber tube.

The skin wound is closed with elastic bands attached to adhesive straps.

Interval cases without adhesions are handled as formerly, the appendix being removed entire.

The stump is not ligated as bleeding is prevented by penetrating the mucosa of the cæcum with the purse-string suture, a true inversion of the stump rather than a mere depression being thus effected.

The wound is dressed with an elastic belt constricting the entire abdomen. P. M. CHASE.

Rulison, E. T.: The Clinical Application of the Carrel-Dakin Method to Cases of Acute Appendicitis Requiring Drainage. *Surg., Gynec. & Obst.*, 1920, xxx, 294.

In an attempt to shorten the period of drainage following acute suppurative appendicitis Rulison has been studying the technique and effect of applying Dakin's fluid to the drainage tract. As severe pain and shock attend the introduction of Dakin's fluid into the free peritoneal cavity, it is necessary to establish a straight, walled-off tract before the fluid is introduced. The injections will then be intra-abdominal but not intraperitoneal. Mechanical pressure, either by tubes or fluid, upon the walls of the tract must be avoided.

A detailed account of a somewhat elaborate technique is given and an analysis of the results in a series of cases. The author warns against an indiscriminate use of the method.

L. H. TUHOLSKE.

Cope, Z.: The Surgical Aspects of Dysentery. *Lancet*, 1920, cxcviii, 579

Dysentery may appear as a complication of a surgical condition, as a flaring-up of a previous condition incidental to an operation, or as a fresh infection on an already weakened resistance. The surgical complications of dysentery, however, are not common. Dysentery at times may simulate surgical conditions such as cancer of the rectum. Piles also are frequently misleading when associated with dysentery.

Amœbic typhlitis may resemble appendicitis, and amœbic hepatitis, cholecystitis. Amœbic dysentery, due to the entamœba histolytica, leads to ulceration of the intestinal wall which in severe cases resembles wet blotting paper. In the bacillary type the etiological organisms are the bacilli of Shiga and Flexner and the Y-bacillus. In this type fever and toxæmia predominate and ulceration is not a constant factor.

The surgical complications of dysentery may be divided into three groups: (1) those due to local processes in the intestine, (2) those following the remote effect of the organism or its toxins, and (3) associated surgical conditions. In Group 1 the author places:

1. Perforation of the colon causing general peritonitis, pericolitis, or pericolic abscess. This condition is more common than would be expected and found more often in the amœbic than in the bacillary infections. The symptoms produced depend on the position and direction of the perforation of the ulcer. The condition of the patient is usually very poor and the sewing of the friable bowel wall entails many technical difficulties.

2. Acute œdematous localized colitis, especially typhlitis. In this condition it is found that cæcal dysentery is often latent and misleading, so that a wrong diagnosis of acute appendicitis is made. Relief is frequently afforded by the administration of emetine.

3. Dysenteric appendicitis. This may be associated with dysenteric typhlitis and seldom occurs alone.

4. Extensive sloughing of the mucous membrane. In some patients the colon becomes an actual pus sac. Frequently it is difficult or actually impossible to isolate the specific bacilli as there is usually an associated secondary infection the organism of which overshadows those of the primary infection. In the treatment of patients with extensive colonic ulceration of amœbic origin an appendicectomy, cæcostomy, or some similar operation which will provide rest and permit irrigation of the affected bowel is advised.

5. Cicatrization and stricture of the colon or rectum. These conditions were found surprisingly seldom.

6. Perinephritic abscess. This complication cannot be definitely attributed to dysentery, but should not be totally disregarded.

The amœba histolytica may be the etiological factor in several associated conditions. The most common of these is amœbic hepatitis which is readily amenable to treatment with emetine. Another associated condition is liver abscess of amœbic origin. This is now preventable by the early treatment of dysentery with emetine. When once formed, however, such abscesses should be drained and the amœbæ in their walls destroyed. Similar abscesses are found occasionally, though rarely, in the kidney, brain, and spleen.

Group 2 includes the remote complications of surgical interest such as septicæmia, arthritis, iritis, pyæmia, myalgia, fibrositis, and periostitis which are found in bacillary dysentery. The associated conditions which fall in Group 3 are parotitis, boils and abscesses, and thrombosis. G. S. FOULDS.

Reeder, J. D.: Stricture of the Rectum. *Am. J. Surg.*, 1920, xxxiv, 49.

There are three types of rectal stricture, the annular, the tubular, and the linear. The annular stricture assumes the shape of a ring which involves only a very small portion of the rectum and completely surrounds it. The tubular stricture is a tube-like constriction an inch or more in length which involves the entire circumference of the bowel. The linear stricture consists of a cicatricial or fibrous deposit over a limited area of the circumference of the intestine by which the caliber of the bowel is lessened either by the mass of the deposit itself or by contractions of the walls of the gut over the area it occupies.

According to their etiology rectal strictures may be divided into congenital, traumatic, tuberculous, neoplastic, syphilitic, gonorrhœal, dysenteric, and inflammatory strictures.

Small cicatricial or connective-tissue deposits in the intestinal walls are constant sources of irritation because of the friction produced by the passage of fæcal matter over them. Similar symptoms may be produced by obstruction due to external pressure such as that of tumors. In such cases an inflammation may be set up in the intestinal walls which will eventually produce stricture.

Under the term "spasmodic stricture" two dissimilar conditions have been described. In one, a contraction with no organic change in the gut causes spasmodic contraction of the muscles without any actual shortening; in the other, organic change and permanent constriction of the tube are produced by persistent spasmodic contractions and result in shortening and fibrous transformation of the muscular fibers involved.

Strictures may occur at any point in the intestine from the margin of the anus to the upper limits of the pelvic colon, but the large majority begin within the first 6 cm. of the anus. It is necessary to determine not only the presence of a stricture, but also its location, pathologic character, its extent, and its degree. When the stricture is low down these facts may be learned with comparative ease. The history of the case will give valuable information as to the presence of the stricture and its pathologic character. Previous injury or operation, diffuse proctitis, pelvic cellulitis, prolonged labor, perirectal or pelvirectal abscess, syphilis, fistula, or rectal ulceration may give clues.

Examination should be made with the patient on his side, the hips being flexed upon the abdomen and elevated upon pillows. The character and odor of a discharge from the parts should be carefully noted. The best way to arrive at a diagnosis is to insert the finger.

In the treatment gradual dilatation has succeeded in curing a certain number of strictures as it squeezes the blood out of the strictured area and when the instrument is withdrawn a state of arterial hyperæmia follows which results in the absorption of the newly formed tissues. If the stricture is ulcerated or infected, it should be treated locally through the proctoscope before an operation or dilatation is attempted. The best local agents are a 10 per cent solution of ichthyol in glycerin, a 3 to 5 per cent solution of silver nitrate, and a 10 per cent solution of tincture of iodine in glycerin. After the condition clears up gradual dilatation should be begun with Wale's bougies, not more than three sizes being used at a treatment and the treatments being given at intervals of two or three days.

The patient should be given a nourishing but non-irritating and preferably a nitrogenous diet and with it a large amount of cod-liver oil or olive oil. Purgatives are absolutely contra-indicated.

The chief local and operative treatments are dilatation or divulsion, proctotomy, excision and entero-anastomosis, colostomy, and electrolysis. Tuttle's method of introducing bougies is used.

I. W. BACH.

Todd, T. W.: Anatomical Considerations in the Rectal Prolapse of Infants. *Ann. Surg.*, 1920, lxxi, 163.

Attention is directed to the type of prolapse of the rectum which begins at the anal margin. In view of the occurrence of this condition in infants and young children, the results of investigations on the infant pelvis are recorded.

A sagittal section of the pelvis at birth shows that the rectum at that time is in a position of mechanical disadvantage as it occupies a lower site than the bladder and uterus and the sacrum is less curved than the sacrum of the adult and therefore not as able to relieve it from the pressure of overlying viscera.

The rectal stalks comprise the tissue surrounding the middle hæmorrhoidal vessels and visceral pelvic nerves, branches of which pass to the rectum from the third and fourth sacral trunks. In the adult the possible increase in length of the rectal stalk corresponds roughly to the distance the rectum can be drawn out of a perineal wound when the levatores ani, but not the stalks, have been completely severed. In the infant the length of the rectal stalks and their increase in length on dissection correspond proportionally to the conditions found in the adult. There is therefore no greater laxity of the rectosacral attachments in the infant than in the adult.

From the facts enumerated it is evident that the only anatomical factors of special importance in the rectal prolapse of infants are the comparatively straight sacrum and the more vertical rectum.

E. H. Pool.

Hirschman, L. J.: A Successful Hæmorrhoid Operation under Local Anæsthesia. *Am. J. Surg.*, 1920, xxxiv, 58.

After the skin surface has been prepared by the alcohol-iodine method, a point ½ in. behind the posterior commissure of the anus is pinched or touched with a swab moistened with phenol. The syringe needle is inserted at this point and the solution distributed in a U- or V-shaped direction around the posterior third of the anal circumference so as to produce pressure on the sphincter nerves.

The subcutaneous infiltration is continued until the anus has been completely surrounded and the surrounding skin is then grasped at four points with a Pennington triangular forceps. The hæmorrhoids having been everted by traction, a 0.5 per cent solution of apothesine or quinine and urea hydrochloride of the same strength is injected into them. The most dependent hæmorrhoid is grasped with the forceps, drawn down in its long axis, and held with a No. 2 catgut suture passed through it at its juncture with the healthy mucous membrane and tied. The anterior hæmorrhoids are ligated in the same manner, then the posterior and the upper in the order named. After ligation the hæmorrhoids are excised from without inward, as much of the normal mucosa being saved as possible. I. W. Bach.

Beer, E.: Aseptic Amputation of the Rectum. *Am. J. Surg.*, 1920, xxxiv, 53.

The great advantage in the technique described is the rapid healing of the large wound made by the excision of the rectum and lower sigmoid.

The intestines having been thoroughly cleansed by two courses of castor oil, the anal opening is shut off by suture. A skin flap is then turned up around the anal circumference and sewed together with a heavy silk suture so as to prevent leakage. The area is then painted with iodine.

The rectum is exposed by an incision running well up above the peri-anal denudation and a little to the left of the median line. The coccyx is removed in the usual way and the rectum liberated well above the growth. The pouch of Douglas is opened and the sigmoid drawn down so that it is liberated well above the growth and glandular involvement. The peritoneum is closed at the new level on the sigmoid.

The skin incision is then continued down to the denuded area on either side of the anus. After the anus is liberated from its attachments, the rectum, sigmoid, and anus, unopened, are thrown over on the sacrolumbar region. The levator ani muscles are united to make a firm pelvic floor and a tube is placed in the most dependent part of the wound, the original site of the anus. Skin stitches are inserted and a small packing is introduced up to the suture line at the pouch of Douglas.

The protruding gut is tied off about ½ in. from the level of the closed skin and a clamp is placed across the bowel about 1 in. distal to the ligature. The intestine is sutured to the skin without entering its lumen, and a small packing inserted above the new position of the gut. The wound is then dressed while the gut is still attached. After the dressing is applied, section of the bowel is done with the cautery between the ligature and the clamp.

The ligature is allowed to remain in place until the patient complains of distention or cramp-like pain. It is then opened and a rectal tube is introduced well into the bowel. The rectal tube is held in place by a purse-string suture. I. W. Bach.

Kiger, W. H.: Tuberculous Fistula in Ano. *Am. J. Surg.*, 1920, xxxiv, 40.

The tuberculous variety of fistula in ano is characterized by a pale surface, reduction of adipose tissue, cold, a "boggy" feeling, and absence of abscess formation. There is no pus although the sanious discharge is often mistaken for pus. The ordinary form of fistula in ano results from an inflammation characterized by pain, heat, swelling, redness, and abscess formation calling for the immediate evacuation of pus.

The treatment of tuberculous fistula in ano is operative. The patient's physical condition, the technique of operation, and the anæsthetic are all of the utmost importance. For general anæsthesia chloroform is the anæsthetic of choice as it causes the least irritation to the lungs and kidneys. Local

anæsthetics are of less value as the area infiltrated is not sufficient to render the operation painless, the skin is too thin for injection, and the needle puncture forms a route by which the disease may be spread.

The author's method of treating tuberculous fistula in ano is summarized as follows:

1. Thorough flushing of the bowels both the evening and morning before operation.

2. The use of spinal anæsthesia which is easily induced, effects complete relaxation, and does not cause nausea, vomiting, or shock.

3. Thorough opening of all sinuses and cavities and the trimming of the overhanging edges by means of the Percy cautery knife.

4. Cauterization of the exposed injected area and all fistulous tracts.

Any fistulous opening into the bowel which passes under the sphincter muscle must be handled with the utmost care as otherwise fæcal incontinence may result. All the fistulous tracts must be cauterized and it may be necessary even to cut the muscle.

Some of the advantages of the method described are that it does not cause a great loss of blood, it destroys the tubercle bacilli, closes the lymphatics, and is followed by only slight after-pain.

For the first two days following the operation the wound is treated as a burn. Iodine, 25 per cent argyrol, or 50 per cent enzymol is applied as a wet dressing. R. R. MUSTELL.

LIVER, GALL-BLADDER, PANCREAS, AND SPLEEN

Rehfuss, M. E.: Analysis of Diseases of the Gall-Bladder and Ducts. *Med. Clin. N. Am.*, 1920, iii, 1223.

Rehfuss considers the anatomy and physiology of the biliary system and quotes MacCarty as stating that the stomach, duodenum, pancreas, gall-bladder, bile-ducts, and liver must not be separated functionally, but considered even pathologically as a single physiological system.

The gall-bladder is subject to the same pathologic processes as other organs of the gastro-intestinal tract except that, because of its peculiar function and the tendency of altered bile to stagnate, the formation of calculi also occurs.

Acute cholecystitis is nearly always due to bacterial infection of the gall-bladder. Less frequently toxins may be the cause. The gall-bladder may become infected in three ways:

1. By way of the blood stream in which, as a result of septicæmia and pyæmia (not infrequently in pneumonia and influenza) the organism is carried directly to the gall-bladder. This mechanism includes the so-called elective localization of organisms in the gall-bladder wall (streptococci, Rosenow).

2. By ascending infection from the intestinal tract (duodenitis).

3. By the elimination of the organisms in the bile and their accumulation in the gall-bladder. The colon, influenzal, and typhoid groups are believed to enter the gall-bladder in this way.

The bacteriology of acute cholecystitis represents not merely the colon and typhoid group of bacteria but also the paratyphoid bacillus, the streptococcus, staphylococcus, and pneumococcus.

The forms of acute cholecystitis depend on the extent and severity of the lesion and are classed as acute catarrhal, membranous, suppurative, phlegmonous, and gangrenous. The symptoms are:

1. Generalized abdominal pain due to the association of the branches of the cœliac axis and the vagus.

2. Pain over the gall-bladder area at the intersection of the right costal cartilage (ninth) and the border of the right rectus.

3. Not infrequently referred pain to the right shoulder due to the association of the phrenic and supra-acromial nerves through the fourth cervical plexus.

4. Upper right rectus rigidity due to the association of the splanchnics and the intercostals.

5. Nausea and vomiting due to the splanchnics and vagi and later to toxæmia and peritonitis.

6. Localized tenderness over the gall-bladder area.

7. The general signs of peritonitis if peritonitis is present.

8. Leucocytosis if there is inflammation with pus.

The differentiation must be made from appendicitis, acute hepatitis, pyelonephritis, and subphrenic abscess.

Chronic cholecystitis is nearly always the result of repeated acute attacks, although in certain instances it begins as a chronic, persistent infection of low virulence. There are many forms of the condition which vary from the "strawberry gall-bladder" described by MacCarty to forms in which the predominating features are atrophy and adhesions causing considerable deformity in the neighboring organs. The diagnosis may be based on attacks of colic (stone) with persistent local tenderness or local physical signs during an acute exacerbation.

Tuberculosis has been held responsible for the fistula associated with cholecystotomy but its presence in the gall-bladder is rare as is also that of actinomycosis and syphilis.

Cysts, adenomata, and papillomata of the gall-bladder are other infrequent affections. Sarcoma may affect the gall-bladder, but the most frequent malignant disease is carcinoma. In from 70 to 90 per cent of the cases of carcinoma gall-stones are found, and the belief is therefore held by many that the calculi are responsible for the carcinoma.

In the study of gall-stones consideration must be taken of: (1) their etiology; (2) their clinical manifestations which vary according to the localization and extent of the stone formation; and (3) the attitude to be adopted toward their presence.

The etiological factors of stone formation may be grouped under three heads: (1) stasis of bile; (2) infection of bile; (3) alteration in bile.

Stones vary in number from one to many thousands. Most of them are faceted or rounded off, but occasionally a mass of concretions, usually of the pigmented variety, show no sign of faceting and are sharp and prickly.

Gall-stones give rise to symptoms which vary according to their position and the simplest way to approach the problem is to consider them from the standpoint of their position. A stone may be situated: (1) in the gall-bladder, (2) in the cystic duct, (3) in the common duct, and (4) in the ampulla of Vater. In a given case stones may be found in one or more of these positions. The important point to bear in mind is the mechanism by which these different forms act.

Stone in the gall-bladder acts reflexly, not mechanically. Therefore it does not give rise to the phenomena of obstruction and unless there is pronounced irritation and infection of the gall-bladder wall it is not associated with colic.

Stone in the cystic duct produces biliary colic, but is non-obstructive so far as the flow of bile is concerned. Stone in the common duct produces the typical colic associated with obstructive jaundice. Stone in the ampulla of Vater is frequently associated with pancreatic disturbances.

Cholelithiasis must be differentiated from renal colic, cholecystitis, perforating gastric or duodenal ulcer, pancreatitis, intestinal obstruction, angina pectoris, appendicitis, and the various forms of peritonitis.

In making a diagnosis of gall-bladder disease the patient's history as well as the physical examination must be taken into consideration. If gall-bladder disease is present the physical examination will reveal tenderness, hyperæsthesia, rectus rigidity, or a palpable tumor.

In the chemical analysis of the gall-bladder an attempt should be made to determine the quantity and quality of the bile output either directly, by duodenal intubation, or indirectly, by means of fæcal analysis. The author discusses these tests in detail.

To reach a diagnosis of gall-bladder disease a correlative diagnosis must be made by carefully reviewing and comparing the etiologic, symptomatic, physical, and chemical evidence. In every case of chronic gastro-intestinal disease in which a pathologic condition of the gall-bladder is suspected all of the methods mentioned should be applied.

G. W. Hochrein.

Lyon, B. B. V.: Some Aspects of the Diagnosis and Treatment of Cholecystitis and Cholelithiasis. *Med. Clin. N. Am.*, 1920, iii, 1253.

Lyon presents the history of a patient, 47 years of age, whose case had been diagnosed as cholelithiasis, cholecystitis, and choledochitis. He had been perfectly well until he contracted influenza during the epidemic of 1918. He was considerably weakened by this attack and never felt entirely well afterward. He stated that he had never been sick in his life, but cross-questioning revealed the fact that for nearly twenty-five years he had had attacks of headache which occurred about once a month and lasted for two or three days—blinding headaches with dancing black specks before the eyes. These headaches varied from occipital to temporal to frontal in location, and when most severe were associated with vertigo which occasionally caused him to fall. At the height of an attack he would break out in chilly cold sweats and occasionally vomited. The condition was relieved only by calomel and salts.

Eight months after the attack of influenza sudden attacks of epigastric distress began, ushered in by nausea followed by pain which was at first of a "smothery" type and later cramp-like, but not referred to the back or either shoulder. On one occasion there was retention vomiting. Toward the end of an attack, which usually lasted from a few hours to a day, a very mild jaundice developed which continued for a few days and was associated with a somewhat diffuse epigastric soreness. The stools were offensive and "gassy." In four months the patient lost 31 pounds.

On examination the abdomen was negative. There were no special points of tenderness. The urine contained only slight traces of albumin. The phenolsulphonephthalein test showed 68 per cent of elimination in two hours. The blood showed a moderate secondary anæmia and a normal leucocyte count. The Wassermann reaction was sharply negative. A twelve-hour motor meal showed no gross or microscopic retention. Chemically there was no free hydrochloric acid. The total acidity was 15 per cent, and there was an instantaneous blood reaction to benzidene. Lactic acid was demonstrable. The fractional analysis of a bread and water meal showed nearly complete achylia; hypermotility; biliary regurgitation in 4 specimens; and traces of bleeding in all 8 specimens which increased as the stomach became empty.

Analyzing the symptoms there were two chief possibilities in the diagnosis, namely, gall-bladder disease and carcinoma of the stomach or its neighborhood. In favor of carcinoma were the loss of weight, progressive anæmia, pus and blood in the fasting and digesting stomach, the presence of rod bacilli suggesting the Oppler-Boas bacillus, and lactic acid. The stool examination suggested gall-bladder disease but the diagnosis was clinched by duodenobiliary direct analysis.

This examination was done with the duodenal tube and on the fasting stomach. The procedure is as follows:

Disinfect the mouth, assist the patient to swallow the tube, wash thoroughly and disinfect the stomach, and then allow the marked tube to be swallowed slowly until it passes about 3 in. into the duodenum. Attempt gently to aspirate the duodenal secretion and set the aspirated material aside for examination for catarrhal, inflammatory, and infective elements. Note whether the duodenum is bile-free. First dis-

infect and then locally douche the duodenum with 50 to 100 ccm. of a 25 per cent saturated solution of magnesium sulphate to relax the tonus of the duodenum and the circular muscle fibers (Oddi's muscle) at the terminal end of the common bile-duct. Connect up with the first aspirating bottle and note how soon bile begins to flow. Continue to collect the bile in this bottle until through the glass window in the duodenal tube a deepening in the color of the bile is noted, which will indicate that the first bile diluted with the magnesium sulphate is being replaced by pure bile. Now disconnect the first bottle, set it aside for examination, attach Bottle No. 2, and continue the collection of bile until it also changes in color and consistency. Usually it will become a deeper yellow and thicker. Detach Bottle 2, set it aside, and attach Bottle No. 3. Continue the drainage until this darker bile is replaced by a lighter lemon-yellow, limpid, and usually transparent bile. Then detach the third bottle and attach Bottle 4 into which collect as much as desired. By this means the biliary system can be drained for as many minutes or hours as necessary. All tubes, bottles, syringes, and glass receptacles used must be sterile.

On the application of this method of diagnosis in the case reported it was found that the tube reached the bile-free duodenum in twenty-two minutes and that the duodenal secretion showed evidence of a catarrhal duodenitis. After the duodenum was douched with magnesium sulphate solution bile appeared in six minutes (somewhat delayed). Cultures were examined and found to contain bacillus coli communis, pneumococcus capsulatus, streptococcus viridans, and micrococcus tetragenus.

About two weeks later the patient was operated upon by Elliott. The gall-bladder was found shrunken and contracted and with a thickened wall. It contained from 50 to 60 small unfaceted stones ranging in size from that of small granules to that of a large match-head. The bile was thickened. Cultures were reported sterile. The gall-bladder was drained by rubber tubing sewed in with chromic gut, the total duration of the drainage being eleven days. A little less than 8 oz. of bile was drained in seven days.

The patient returned to the author at weekly intervals for examination. At each visit the duodeno-biliary direct analysis was made in the manner described. At the time this report was made (January) his condition was excellent.

The author considers the method described very satisfactory for the treatment of cases which do not yield satisfactorily to gall-bladder drainage.

G. W. HOCHREIN.

Langfeldt, E.: The Partial Pancreatectomy; Investigations Regarding Experimental Chronic Pancreatic Diabetes. *Acta med. Scand.*, 1920, liii, 1.

The author made a series of tests upon dogs to determine: (1) how glucosuria develops after partial extirpation of the pancreas; (2) whether the removal of different parts of the pancreas gives different results; and (3) the metabolic and clinical manifestations of chronic diabetes.

A detailed account is given of experiments performed on normal dogs to obtain control tests for the subsequent tolerance tests on dogs which were operated upon. By these experiments it was demonstrated that both young and full-grown dogs have an extraordinarily high glucose tolerance.

In tests of the glucose tolerance following partial extirpation of the pancreas 3 of 4 dogs belonging to the same litter were operated upon (Dogs 1, 2, and 4) and the fourth (Dog 3) was used as a control. Two of the dogs were operated upon when they were puppies (Dogs 1 and 2), and the third (Dog 4), after it had become full grown. From the young animals (Dogs 1 and 2) eight-ninths and seven-eighths of the pancreas were removed respectively. For the first few months after the operation these dogs showed a reduced glucose tolerance as compared with the control animal. As they grew, however, their tolerance gradually increased both absolutely and relatively in proportion to their body weight. This period lasted about three months in the case of Dog 1 and about eight months in the case of Dog 2. After an interval of six and eight months, respectively, in which the tolerance remained apparently normal, these dogs again showed a decreased tolerance and one of them (Dog 1) developed diabetes. The other (Dog 2) was killed at this time for purposes of examination.

From the full-grown dog (Dog 4) eight-ninths of the pancreas were removed. The animal showed no increasing tolerance and developed a spontaneous and continuously increasing glucosuria immediately after the operation.

Of 2 dogs belonging to the same litter, 1 (Dog 3) was operated upon and the other was used for a control. For ten months after the removal of six-sevenths of the pancreas Dog 3 showed no decrease in tolerance for glucose, being able to tolerate up to 100 gm. (2.3 gm. per kilogram of body weight) without developing glucosuria. At the end of that time, however, glucosuria developed after the administration of glucose and during the next two months its tolerance still further decreased.

In tests of the blood sugar it was found that there was practically no difference between the values obtained for normal and partially depancreatized, non-diabetic dogs in a fasting condition. The values obtained lay between 0.08 and 0.09 per cent. Bang's micro-method was used.

In man, according to Jacobsen, there is a distinct relationship between glycæmia and glucosuria. Glucosuria never occurs with a glycæmia of 0.15 per cent and under, but nearly always occurs when there is a glycæmia of 0.18 per cent and over. In diabetes a glycæmia between 0.12 and 0.15 per cent gave a glucosuria.

The results of experiments to determine the relationship between glycæmia, hyperglycæmia, and

glucosuria in normal and depancreatized dogs are given in detail. The conclusions drawn are as follows:

1. The percentage of blood sugar, which normally lies between 0.08 and 0.09 per cent, may rise to 0.17 per cent without the development of glucosuria.

2. The lowest concentration of blood sugar causing glucosuria is 0.19 per cent both in normal dogs and those which have been operated upon.

3. The total amount of glucose excreted is dependent upon both the degree of the hyperglycæmia and its duration for values over 0.19 per cent. Of these two factors the second seems to be the most important.

4. The concentration of glucose in the urine is proportional to the concentration of blood sugar.

The author's general conclusions from the experiments on the development of glucosuria are:

1. After partial extirpation of the pancreas, decreased tolerance for glucose is the earliest indication of an alteration in the carbohydrate metabolism.

2. Following this period of decreased tolerance for glucose a condition gradually develops which is characterized by the fact that glucosuria may be brought on by the administration of large quantities of starch but not by the ingestion of protein and fat alone.

3. This state merges into a condition in which large quantities of protein (300 gm. of meat) produce glucosuria, but this glucosuria disappears when the quantity of protein is reduced (100 gm. of meat).

4. Glucosuria then becomes manifest after the ingestion of even small quantities of protein (100 gm. of meat).

5. Finally, even after fasting, it becomes difficult, if not impossible, to overcome the glucosuria.

On dogs with the symptoms of diabetes mellitus numerous experiments were performed to study the metabolism, the quotient D/N, glucosuria after the administration of various proteins and of fat, the metabolism of protein in hunger and after the administration of glucose, and the effect of feeding ox pancreas both raw and boiled.

In the cases of 2 dogs the clinical picture of a manifest chronic diabetes of eight and thirteen months' duration respectively was observed. A slight, a medium, and a grave form of glucosuria were noted. The symptoms were polyuria and polydipsia, gradual emaciation and polyphagia, ketonuria and acidosis, albuminuria and cataract.

In the chapter on metabolism the investigations hitherto carried out on the total metabolism in diabetes mellitus in man and in experimental pancreatic diabetes are discussed exhaustively. An attempt is made to explain the genesis of the increased metabolism which the more recent investigations seem to indicate occurs in cases of grave diabetes.

The value of determining the respiratory quotient to discover whether or not a consumption of sugar takes place in diabetes is discussed and it is concluded that this question cannot be answered in this way and is still an unsolved problem.

One hundred and seventy-nine determinations of the quotient D/N were made. In both of the depancreatized dogs the quotient D/N was slightly higher on an average than that of Minkowski's dogs with total pancreatic diabetes, i.e., 3.00 and 3.10. Values between 3.5 and 4 were observed often, and those over 4 occasionally.

Experiments in feeding various proteins showed that gelatine had the highest sugar-forming capacity and was followed in this respect by ovalbumen, meat, and casein. The fact that the patient's cond tion grew worse in the course of the tests cannot be disregarded, however, and the experiments must be interpreted as indicating that the difference in the sugar-forming capacity of the proteins investigated is very slight.

The administration of fat does not cause glucosuria as when the urine of a dog was not free from sugar after two days' fasting it became free from sugar on the following day after the dog was fed with fat and later showed the presence of sugar after the dog was fasted. The experiments are of interest only from a practical viewpoint and solve none of the theoretical problems.

The metabolism of protein in hunger was found to be increased in the cases of both dogs studied but did not reach the same height as that of the totally depancreatized dogs although the quotient D/N was equally high in both cases.

Determinations of the nitrogen excretion after the administration of glucose showed that the protein metabolism (N excretion) increased in pancreatic-diabetic dogs as a result of the administration of glucose per os.

Experiments in which pancreas was fed confirmed the results obtained by earlier investigators. Raw pancreas increased the glucosuria while boiled pancreas seemed to diminish it.

The relationship of hyperglycæmia to ventricular secretion was also considered. Feeding tests with protein-fat showed an increase in the blood sugar in diabetic dogs. This increase coincided with the termination of the ventricular digestion and the evacuation of the ventricle and reached its highest point before the absorption was completed. Bouillon administered per os caused a great increase in a pancreatic-diabetic dog, a distinct increase in a depancreatized but not diabetic dog, but no increase in a normal dog. In diabetic animals the administration of water resulted in a distinct increase in the hyperglycæmia.

After a general discussion of the results of the experiments from the standpoints of physiology, pathologic physiology, and anatomy, the author concludes that the findings in dissection combined with the experimental results seem to assign the most important rôle in the genesis of all diabetic phenomena to a primary insufficiency of the pancreas. The fact that these conditions can be

aggravated or alleviated by the action of the other endocrine organs ought to be regarded, it would seem, in the same way as the action of pharmacological substances and need not necessarily involve the supposition that there is an active reciprocal action between these organs and the pancreas.

The article is concluded with complete protocols of the experiments, a bibliography of 167 titles, and numerous photomicrographs. P. M. CHASE.

MISCELLANEOUS

Mayo, W. J.: The Relation of the Development of the Gastro-Intestinal Tract to Abdominal Surgery. *J. Am. M. Ass.*, 1920, lxxiv, 367.

The derivatives of the foregut—the stomach, liver, and pancreas, and the duodenum down to the common duct—prepare the food for digestion, but do not absorb it. These organs have their blood supply from the cœliac axis. The derivatives of the midgut are supplied by the superior mesenteric artery and those of the hindgut down to the rectum from the inferior mesenteric artery. Absorption occurs mainly in the derivatives of the midgut.

Embryologically the dividing line between the duodenum and the stomach is in the region of the common duct. The small postpyloric portion of the duodenum so frequently the site of ulcers is in a portion of the stomach and in consequence shares the stomach's susceptibility to ulceration.

The splenic flexure marks the limit of the absorbing area of the intestine. The proximal half of the large intestine does not differ anatomically from the left half. In the embryo, however, villi are found in the right half similar to the villi in the absorbing area of the small intestine.

The pancreas and duodenum, originally intraperitoneal organs, are rotated during development and become partially extraperitoneal. This explains why in cases of acute inflammation the pancreas may cause necrosis of the retroperitoneal as well as the intraperitoneal fat.

The proximity of the retroperitoneal portion of the duodenum to the right kidney is of great surgical impotance. In operations upon the kidney, especially in cases of malignant disease or chronic inflammation about the pelvis, the duodenum may be injured.

The large intestine, originating on the left side of the body, rotates to the right, reaching its normal situation shortly after birth. Failure to rotate completely may give a confusing surgical picture in later life.

The small intestine has its mesenteric attachments confined to a 6 in. base passing behind the umbilicus. This explains why most diseases of the small intestine cause pain referred to the umbilical region.

The upper jejunum is thick and wide and may be recognized by its thin mesentery with large, long, and straight vessels and having but one or two primary arcades close to the base. In the lower ileum the intestine is thin and the mesentery thick, the vessels are smaller and shorter, and there are several superimposed arcades.

Beside initiating action the central nervous system has only a slight influence in vegetative life. It controls the function of viscera more recently added, organs of convenience such as the fundus of the stomach, the sigmoid portion of the colon, and the bladder.

A number of visceral functions are dependent on non-striated muscle fibers. Keith has described a system of nodes composed of muscle cells and autonomic nerve fibers. Careful study of this system with reference to the heart has demonstrated that it controls also the action of the gastro-intestinal tract. Keith suggests that the nodes act like a block system on a railroad, controlling food progress by their action on the various sphincters. Food passing through the pharynx stimulates the first node and from there impulses are carried to a second node situated at the cardiac end of the stomach. The third node is at the termination of the primitive foregut near the common duct, and the fourth at the duodenojejunal juncture. The fifth node is found at the ileocæcal valve and is of importance in relation to stasis in this region. The sixth is near the middle of the transverse colon and is responsible for the retention of food products in the right half of the large intestine. The seventh is in the rectosigmoid area. The eighth is concerned with rectal control.

The sympathetic nervous system which correlates visceral action stimulates the function of the endocrine glands and is in turn stimulated by their action. The hormones or secretions from these glands act through the blood stream and are important in visceral control. A. J. SCHOLL, JR.

MacMillan, A. S.: Diaphragmatic Hernia. *Am. J. Roentgenol.*, 1920, n. s. vii, 143.

Among approximately 15,000 patients examined in the roentgen laboratory at General Hospital No. 1, 3 cases of diaphragmatic hernia were found. In each, the diagnosis was made first by the roentgenographic examination. The case histories are given in detail.

Two of the patients had received chest wounds which probably accounted for the opening in the diaphragm. In 1 case both the stomach and colon passed through the opening which apparently was large enough to cause no embarrassment in the emptying of either of them. In the other case only a part of the stomach protruded but this had become strangulated and there was almost complete gastric retention. In the third case there was no history of trauma. The hernia developed after pneumonia and empyema. Part of the stomach and colon extended through a rather small opening in the diaphragm but there was no apparent interference with their emptying. The opening was either of congenital origin or, as is more probable, due to the operation for empyema. ADOLPH HARTUNG.

Hirsch, E. F.: Retroperitoneal Liposarcoma: Report of an Unusually Large Specimen, with Chemical Analysis. *Am. J. M. Sc.*, 1920, clix, 356.

The author reports a retroperitoneal liposarcoma, the largest and most extensive reported to date, and gives a short résumé of the literature.

When first seen, the patient, a man 55 years of age, complained of dyspnœa, moderate cough, and swelling of the abdomen and feet which were associated with progressive weakness and had persisted for eighteen months. On examination, nodular masses were found in the abdomen which was irregularly dull. Paracentesis withdrew only 5 ccm. of fluid. This contained large lymphoid cells and many eosinophiles showing peculiar mitotic figures. A diagnosis of peritoneal carcinomatosis was made.

During the next two years the patient was seen twice. Examination disclosed progressive enlargement of the abdomen, increasing emaciation of the head and upper part of the body, and a chronic nephritis. Because of the length of time that had elapsed since the beginning of the symptoms, the condition was believed to be of a cystic character.

At operation a large tumor mass was found between the anterior layers of the mesentery and numerous smaller masses scattered throughout the abdomen. The large tumor, which weighed about 14,340 gm. was removed but the patient died within forty-eight hours.

At autopsy the anatomical examination revealed a retroperitoneal, œdematous fibro-liposarcoma; slight ascites; compression of both lungs; acute hypostatic and aspiration pneumonia; upward dislocation of the heart; pressure atrophy of the liver; occlusion of the left common iliac vein; œdema and varicose veins of both legs; early varicose ulcers of the right leg; chronic œdema of the external genitals; a tumor mass in the right inguinal canal; and fibrosis of the right testicle.

The chemical analysis of the tumor mass resembled that of a granulation-tissue tumor. P. M. CHASE.

Elder, J. M.: An Unusual Case of Retroperitoneal Congenital Cyst Probably Arising from the Wolffian Body. *Canadian M. Ass. J.*, 1920, x, 272.

A girl, 2 years old, who was struck by an automobile, was brought to the Montreal General Hospital with hæmaturia and complaining of pain in the right side of the abdomen. A diagnosis of rupture of the kidney was made. For a week there was intermittent fever, which finally disappeared by lysis. The X-ray examination was negative. At the end of three weeks a fluctuating mass which gradually increased in size was felt in the right side of the abdomen. On needle aspiration of this supposed perirenal hæmatoma clear fluid with a low percentage of albumin and no urea was found.

A right rectus incision was made. The abdominal contents were found pushed to the left by a right retroperitoneal cyst. This cystic cavity was opened posteriorly and a large amount of clear fluid removed The upper end of the cavity was connected with the right kidney and the lower extremity with the right ovary and fallopian tube.

The cyst was sutured to the skin and the cavity swabbed with tincture of iodine and packed with flavine gauze. The abdominal cavity was then closed in the usual manner without drainage. The packing and swabbing were repeated postoperatively and the wound closed in twenty-seven days.

On microscopic examination of a portion of the cyst wall no embryonic structure was found. From its location and character the cyst was judged to be a cyst of the Wolffian body. W. F. HEWITT.

White, C. S.: Mesenteric, or Enterogenous, Cyst. *J. Am. M. Ass.*, 1920, lxxiv, 440.

Only 35 cases of mesenteric or enterogenous cyst were reported in the literature up to 1913, and in none of these was the diagnosis made prior to operation or necropsy. The etiology of the condition is not definitely known. The tumor is invariably congenital and situated at the mesenteric attachment of the small intestine.

In this article is reported the case of a child 4 years of age in whom such a cyst was found at operation.

"The conspicuous and significant symptoms were the resilient, freely movable tumor with intestinal obstruction of an intermittent type, a low leucocyte count, sudden onset and rapid recovery in each attack, and the age of the patient." A thorough X-ray examination was made, but the reports were misleading.

The operation was performed three years after the first symptoms. The enterogenous tumor was removed by resection of the intestine.

A. R. HOLLENDER.

SURGERY OF THE EXTREMITIES

DISEASES OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Corlette, C. E.: A Case of Hydatid Infestation of Bone with Multilocular Hydatid Disease. *Lancet*, 1920, cxcviii, 311.

Cystic disease caused by the Tænia echinococcus is prevalent in Australia. The case reported in this article was seen at the Sidney Hospital and was remarkable principally because of the similarity between the bony and the soft-tissue lesions. Hydatid cysts in bones as described by Virchow are usually of the multilocular type, while the lesions in the soft tissues are usually single cysts. From this fact it has been concluded by some observers that the two conditions are due to two distinct parasites.

The symptoms in the author's case were tumor and pain which had been present for eight years.

At operation an irregular cystic mass was discovered with granular semi-fluid contents. This cyst involved the shaft of the femur and the iliac bone. The head of the femur and the acetabulum had been destroyed, the iliac bone was honeycombed, and the mass extended into the abdomen as high as the liver.

The tumor contained several pints of the characteristic granular material and this contained an enormous number of hydatid cysts. Most of the cysts were small, though some reached 2 cm. in diameter.

On microscopic examination the cysts showed the typical striated cuticle, but no scolices or hooklets. The kidneys, liver, and left lung were free. The upper lobe of the right lung showed the condition unusually associated with a multilocular cyst in the apex. The similarity of the two lesions indicates the identity of the organism.

In similar cases in which lesions have been found in both bone and soft tissue the bony lesions have been thought to be due to emboli passing through the portal system to the general circulation. In the case reported the duration of the bony symptoms and the absence of pulmonary symptoms indicated that the lung lesion was secondary to the lesion in the bone. J. I. MITCHELL.

Dwyer, H. L.: Chondrodysplasia; Multiple Cartilaginous Exostoses. *Am. J. Dis. Child.*, 1920, xix, 189.

Dwyer reports 4 cases of chondrodysplasia, 3 of which occurred in one family. X-ray plates of Cases 1 and 3 and the pathologic reports of the specimens removed from Cases 1 and 2 are given.

CASE 1. A girl aged 7 years, of Italian parentage, but born in America. Lesions on the humeri, the radii, the clavicles, the tibiæ and the phalanges of both hands. These lesions were for the most part in corresponding areas.

CASE 2. A boy of 20 months, born in America. A mass on the right scapula and the third digit of one little finger.

CASE 3. The father, aged 29, who was born in Italy. A bony mass on each tibia just below the tuberosities.

CASE. 4. A boy of 12 years, of another family. Lesions on the left radius, the great metatarsal, the right external malleolus, the left popliteal space, and both tibiæ. Two brothers of this boy had had growths removed from their limbs.

The author's summary is as follows:

1. There are many variations of hereditary deforming chondrodysplasia from the multiple small cartilaginous exostoses, which give no trouble, to great deformities causing dwarfing, paralyis, aneurism, and malignancy.

2. The disease manifests itself in infancy.

3. The condition has much in common with the chondrodystrophies of infancy and adolescence and probably is closely related to them.

C. R. STEINKE.

Bolognesi, G.: The Establishment of the Collateral Vascular System in the Limbs (Su la formazione del circolo collaterale degli arti). *Chir. d. organi di movimento*, 1919, iii, 403.

Bolognesi performed experiments to determine the effect of ligating the external iliac artery in dogs. The ligation was done with a double catgut ligature under perfect asepsis and by the extraperitoneal route. For the first two days following the ligation the femoral pulsations disappeared but soon thereafter returned to normal. The animals were killed after varying periods of time and the vascular systems of both limbs studied with the X-ray after the vessels had been injected. The results of this study are summarized as follows:

1. The arteries below the ligation were found to be enlarged and to possess more numerous secondary branches than those of the corresponding area on the normal side.

2. There was no return of circulation in the tract of the ligated external iliac artery at the end of one month but after two or three months a true collateral circulation had been established which was represented either by communicating arterial branches or by complete restoration of the segment of the main artery which had been excluded between the two ligatures.

3. The gluteal branches of the iliac artery, and especially those of the inferior or ischiatic gluteal artery, took part in the formation of the collateral circulation, becoming larger and richer in branches. These branches anastomosed fully with the femoral branches.

The results verify the theory as to the establishment of collateral circulation which was brought forwarded by Porta as far back as 1845. They demonstrate also that the increase in size of the pre-existing collateral arteries is of greater importance than a very great increase of newly-formed vessels. This vascular dilation persists until the collateral circulation established is sufficient.

W. A. BRENNAN.

Behrend, M.: Acute Osteomyelitis and Periosteitis Complicating Epidemic Influenza; Report of Five Cases; Radius Removed in One Case; Review of the Literature of Excision of the Radius. *Surg., Gynec. & Obst.*, 1920, xxx, 273.

The fact that dangerous complications result if an acute osteomyelitis is not operated upon has not been fully realized by the profession. The destruction of tissue and in some instances the threatened death of the patient make it just as imperative that operation should be done in such cases as in cases of appendicitis and the measures used should be just as radical. The sooner the medullary canal is opened, the better will be the ultimate functional result. The only safe procedure is the removal of the entire roof of the bone. This insures adequate drainage, thereby shortening the healing process which is a long process at best.

A review of the recent literature reveals no reference to acute osteomyelitis as a complication of influenza. The author reports 5 cases.

The period of onset of the condition varies, the manifestations appearing weeks after the acute symptoms have subsided. In 2 of the author's cases an interval of five weeks elapsed before the symptoms of acute osteomyelitis appeared.

The literature of removal of the radius is reviewed and the case histories of the author's 5 cases of acute osteomyelitis following influenza are given.

H. A. McKnight.

Delitala, F.: Trophic Changes in Stumps of the Lower Limbs (Modificazioni trofiche nei monconi di arto inferiore). *Chir d. organi di movimento*, 1919, iii, 535.

In a study of 650 cases of amputation of the lower limbs the author made the following observations:

1. The perimeter of the stump of an amputated thigh is less than that of a normal thigh. This difference is more evident the longer the period of time since the amputation.

2. The difference in the perimeters of a normal and an amputated thigh is directly proportional to the development of the thigh muscles.

3. Muscular atrophy is more manifest in long thigh stumps than in short stumps. It is greatest at the apex and least at the root of the stump.

4. It is not possible to determine just when the process of muscular atrophy ends. The most important trophic changes occur within six months but the complete process may take two years. The trophic change which occurs within the month following amputation is scarcely perceptible.

5. The difference between the perimeter of an amputated and a normal thigh at the root varies from 4 to 6 cm. in patients who have never used prosthetic apparatus. In those who have used such apparatus it is about 9 cm.

6. In stumps of the legs below the knee the atrophy is least at the head of the bones. At this level the difference in the perimeter of the amputated stump and a normal leg is about 2 cm. while at the extremity of the stump it is about 5½ cm. When a prosthetic apparatus has been used the decrease in the upper perimeter is 4 cm. The other observations made regarding thigh stumps apply also to stumps of the lower legs. W. A. Brennan.

FRACTURES AND DISLOCATIONS

Simon, W. V.: Spontaneous Fractures in the "Starvation Osteopathies" of Youth (Zur Frage der Spontanfrakturen bei den Hungerosteopathien der Adolescenten). *Arch. f. Orthop.*, 1920, xvii, 364.

Two cases of spontaneous fracture treated by the author are reported. As the fractures could not be attributed to any of the usual causes, Simon believes they were preceded by bone absorption. They occurred in the middle of the diaphysis of the tibia and the horizontal ramus of the pubis. The cause of the primary absorption is not clear. The treatment consisted of massage, artificial heliotherapy, the administration of arsenic, and injections of adrenalin. Hoheimer (Z).

Arnold, I. A.: Open Treatment of Fractures. *Am. J. Surg.*, 1920, xxxiv, 87.

According to Arnold the open method of treating fractures should be used when: (1) there is considerable displacement of fragments that cannot be otherwise corrected; (2) complete reduction cannot be secured by manipulation; (3) manipulation causes undue trauma to other structures; (4) there are spiculæ of loose bone and soft tissue between the fragments; (5) the fragments are rotated upon each other and cannot be maintained in proper position; (6) the fractures are spiral and multiple; (7) the fractures involve either nerves or blood vessels; (8) the fractures are ununited or in vicious union; (9) the fractures are complicated by dislocation and in close proximity to joints; (10) in any fracture of the femur the anatomical apposition is faulty.

The operative technique in cases of intra-articular fractures is very difficult and should be undertaken only by an operator with considerable experience in bone work. For success the surgeon must have a thorough knowledge of the anatomy of the region to be operated upon and understand the action and function of the muscles and ligaments involved in the injured member.

An experienced surgeon with mechanical skill can often obtain excellent results also by non-operative methods.

The reduction of fractures should always be checked with the X-ray to determine whether or not the fragments are in perfect apposition. It should be borne in mind, however, that the X-ray often seems to exaggerate the deformity when the angle at which the picture was taken is unknown.

Open operation should be performed because: (1) as a rule it insures better functional results than the closed method; (2) it is more apt to give perfect anatomical apposition; and (3) if bone grafts are used, it secures earlier union.

In non-infected fractures operation should be performed as soon as possible after the injury, i.e., within five or six hours. If the patient is not seen until twenty-four hours after the injury and there is evidence of considerable damage to the surrounding soft parts either from the initial injury or attempted reduction, operation should be postponed for ten or fifteen days or until the condition of the tissues has become more normal.

In bone grafting Arnold employs only autogenous grafts and metal fixation. Strict asepsis is a fundamental requisite for success. When the incision is made the anatomy of the important structures should be carefully examined with proper instruments (not with the hands) to determine whether an inlay, a medullary, or a sliding graft would be best. If an inlay or sliding graft is to be used, the piece of bone

or graft should be cut so that it will fit snugly into the groove made to receive it. This inlay or graft must include the periosteum, compact bone, and endosteum. It should be so placed that intimate contact is secured between periosteum and periosteum, compact bone and compact bone, endosteum and endosteum, and should be retained by autogenous bone-pegs or kangaroo tendon to obtain perfect apposition.

The author uses a single saw to cut the graft. To insure the life of the graft it is important to keep the speed of the motor at such a rate that the heat generated will not destroy the bone cells. It is inadvisable to have water flowing over the saw to cool it as this will wash away material that should remain in contact with the bone.

If an intramedullary graft or dowel is used, all periosteum must be removed from the part which extends into the canal of the bone. When substance has been lost from the ends of the fragments, the periosteum should be left on the graft in that space. Perfect hæmostasis must be maintained in this as well as in the inlay method as a blood clot may separate the soft structures from the bone and as a result the graft will be poorly nourished.

As regards fixation, it must be borne in mind that bone grafts or pegs are used to promote union and maintain the fragments in direct apposition and continuity. Their purpose is not to give strength. It is essential, therefore, to handle the part grafted with care and immobilize it completely in a plaster of Paris cast which includes one or more joints above and below the graft.

In discussing internal fixation by metal, such as wiring, nailing, and plating, the author states that in the presence of infection plates should be used in preference to grafts. The same precautions as to asepsis and the same care in the handling of the tissues should be taken in plating a simple fracture as in grafting.

Wiring and nailing have a place in the treatment of certain types of fracture, but their field is limited.

In operating upon a compound infected fracture the original opening should be enlarged sufficiently to facilitate the work. All scar tissue, sequestra, callus, and fragments of bone the viability of which is doubtful should be removed.

The plate used should be as long as the anatomy of the part will permit, preferably a six-screw plate. Plates should be removed as soon as the bones are sufficiently united to prevent displacement of the fragments. G. W. Hochrein.

Hughes, B.: The Use of Autogenous Bone Grafts in the Treatment of Certain Simple Fractures of Bone. *Lancet*, 1920, cxcviii, 595.

While the majority of fractures can be reduced without open operation, simple fractures, such as those near the hip or shoulder joints, and spiral fractures of the lower third of the tibia are best reduced by open operation and the use of autogenous bone grafts.

In order that a bone graft may grow and function it must be autogenous, it must be implanted under the strictest asepsis, and it must include the periosteum as well as the endosteum so that union may be hastened by vascularization. When such a graft has begun to unite a certain amount of movement is beneficial.

Three theories regarding the formation of new bone after grafting have been advanced: (1) the graft is absorbed and new bone is formed from the periosteum; (2) new bone is formed by the proliferation of the osteoblasts within the graft itself; and (3) the bone graft acts as a scaffolding for the osteoblasts from the adjacent bone. These theories are contradictory chiefly because some writers believe the periosteum includes the true cambium of the bone while others do not. If the periosteum does include the true cambium of the bone all of them are in part correct. Roentgenograms have shown rarefaction about the periphery of the graft and new bone formation within the graft itself.

Plates and screws are foreign bodies which will sooner or later produce a rarefaction, or even suppuration, of the bone about them. This may occur as late as four years after the operation, especially if the bodily resistance is lowered. In a number of cases non-union has resulted from the use of plates. An autogenous graft is living tissue which in time becomes a part of the bone into which it was introduced and acts according to Wolff's law.

Particular stress is laid on the importance of asepsis. It is recommended that two or three inoculations of staphylococcus aureus vaccine be given prior to the operation. Because of the very disappointing results often obtained in the cases of patients with certain diseases, it is important also to determine whether a condition such as malaria, syphilis, skin infection, an infectious fever, albuminuria, glycosuria, etc. is present.

The bone graft should consist of the periosteum, the compact bone, and the endosteum. At the end of three weeks the patient should begin to exercise the extremity a little. The graft is usually united with the bone at the end of the sixth week, and use of the limb may be begun two weeks later.

The author considers the autogenous bone graft far superior to plates and screws in open operations for simple fractures. B. R. Parker.

Todd, A. H.: Dislocation of the Shoulder Joint and Its Treatment. *Practitioner*, 1920, civ, 186.

The after-treatment of dislocation of the shoulder is usually very poor. This after-neglect and slavish adherence to traditional methods are responsible for many unsatisfactory results. The disability following the injury is prolonged and in some cases permanent. According to the records of one insurance company the average time a patient is kept from work is twelve weeks.

The usual trouble after treatment of the dislocated shoulder in the traditional position—that is, with the arm bandaged to the side—is limitation of

abduction which is due to adhesions around the lower part of the joint capsule where the tear occurred. These adhesions can be broken up by forcible abduction, but as most of the patients are elderly they are not able to stand such treatment. Furthermore, manipulation of this kind tends to cause arthritic changes in the joint.

To obviate this difficulty a Middeldorf triangle was used in one or two cases, and as the results proved very satisfactory the plan of putting the arm up at right-angle abduction on a splint was generally adopted. The splint may be of celluloid, papier maché, or sheet metal, but must hold the arm out at a right angle and furnish support for the forearm as well.

The inferior part of the joint capsule is very thin and has no muscular re-inforcement. When the arm is hanging at the side this part of the capsule is thrown into redundant folds. It is in this mass of folds that the adhesions occur after the trauma and in old cases the arm may be bound absolutely to the side. If the dislocation is treated with the humerus in abduction at 90 degrees the capsule is stretched out below, the folds are obliterated, and the tear in the capsule is closed with the torn edges in apposition by virtue of the tension produced in the tissue by the abduction. Another advantage is that the muscles passing from the trunk to the humerus are tight in abduction and tend to hold the head firmly in the glenoid fossa, whereas in adduction they are lax and serve no good purpose.

The text-book teaching of binding the arm to the side is therefore condemned as a bad practice. One reason advanced for the adduction method is that it prevents recurrence of the dislocation, but not one patient treated by abduction had a recurrence, while among those previously treated by the adduction method, two have had a chronic recurrence ever since. It is urged that in actual practice abduction gives better results than the old method with less pain, no risk, and a shortened disability time. The author's standard procedure is to abduct the arm immediately after reduction and maintain it at 90 degrees on a splint. No movement is allowed in the shoulder at first, but the rest of the arm is moved freely and massaged. The arm is taken off the splint in from ten to fourteen days and then carried at the side in a sling for a week more. The patient is urged to practice swinging the arm and to rotate and abduct it. Increased abduction is sought for each day. A good plan is to have the patient reach up on a wall, marking the level daily. Circumduction is the final movement to be attained and the patient is not discharged until he can raise the arm steadily and interlock his thumbs over his head.

The analysis of the results in a group of 52 cases shows that the longer the arm was bandaged to the side (9 cases) the longer it took to obtain even a mediocre result and that all patients who were treated by abduction were able to raise the arms well above the head. W. A. CLARK.

Jones, E.: The Treatment of Fresh and Ununited Fractures of the Femoral Neck. *California State J. M.*, 1920, xviii, 92.

Jones cites numerous statistics to prove that the usual methods of extension, suspension, and traction in the treatment of fractures of the femoral neck have given the poorest functional results. He believes that traction in the straight line of the body in loose intracapsular fractures of the neck of the femur never gives firm bony union as accurate anatomical reduction cannot be obtained by this method.

The author describes the Whitman abduction method in detail. The steps are: (1) induction of light anæsthesia; (2) manual or mechanical traction and extreme abduction of the leg; (3) rotation of the leg internally, the trochanter being brought forward; (4) the application of a plaster spica from the toes to the nipple line, the leg being slightly inverted and strongly abducted; (5) elevation of the head of the bed; (6) the wearing of a cast for three months; and (7) no weight bearing for six months.

Cotton's method, which is based on the fact that impacted fractures of the femoral neck almost invariably unite, is also described. In a fresh fracture reduction is effected by traction and abduction until the legs are equal, and an artificial impaction then made by driving the distal fragment into the head of the bone. A loose fracture is thus converted into an impacted fracture.

The author used a combination of these two methods in 6 cases and obtained very favorable results.

After the patient was anæsthetized the Whitman method of abduction was employed. The fracture was then impacted by Cotton's method and a plaster cast applied with both legs in extreme abduction. The cast was applied from the toes to the nipple line on the affected side and down to the knee on the other side. The purpose of such a full and thoroughly applied spica was to maintain absolute abduction and prevent slipping of the pelvis. Weight bearing was not permitted for eight months.

In cases of non-union the author condemns the use of tibial bone grafts as it is often unsuccessful. Instead, he advocates the removal of the head and an arthrodesis of the hip joint. A. R. HOLLENDER.

Strange, C. F.: Fractures of the Tibia and Fibula; Their Treatment by Plating Operations. *Lancet*, 1920, cxcviii, 537.

The author reviews in detail the histories of 15 cases of tibial fractures treated by plating operations. The best results were obtained when the operation was performed shortly after the injury. Fourteen to twenty-one days is considered the optimum period. In cases of long standing it is generally necessary to fracture and mobilize the associated fibular callus.

The incision made is from 10 to 12 in. long and external to the tibial crest. This gives satisfactory exposure without jeopardizing important nerves

or blood vessels. A complete set of Lane's special plating instruments and at least three assistants are essential.

Long plates with sufficient space for 3 screws in each fragment are used. The plates are applied to the external surface of the tibia as in this region they are tucked in between the fibula and tibia and out of the way of the tendons which pass to the foot.

The plates and screws are kept in boiling water until needed and then are handled only with instruments. The operator does not touch the patient with his hands. Small bleeding vessels are ignored, and the incision is closed with clips. The operation is carried out without the use of a single ligature or stitch. The repaired fracture is supported in a Thomas splint for several weeks, the limb then being put on a back-splint with a foot-piece. Usually after three months sufficient callus has formed to permit walking.

The author emphasizes the point that a plate is used merely as a support or scaffolding to hold the fragments in proper alignment until new bone forms.

A. J. Scholl, Jr.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Henderson, M. S.: The Use of Beef-Bone Screws in Fractures and Bone Transplantation. *J. Am. M. Ass.*, 1920, lxxiv, 715.

Henderson holds that technical errors are responsible for the majority of failures in bone grafting. One of the most common errors, poor approximation of the graft to the bone, is overcome by the use of beef-bone screws. These screws are well tolerated by the tissues and are gradually and completely absorbed in from six to twelve months.

Fresh beef bone is obtained usually from the tibia, boiled one and one-half hours, and then cut and sawed into suitable blocks. The blocks are placed in warm petrolatum for several hours in order to replace to some extent the natural oils removed by the original boiling. Care is taken to keep the bone from becoming overheated as this renders it chalky. The sections are next placed in a lathe where they are cut and threaded into several sizes corresponding to those of standard machine screws. In threading the smaller screws it is necessary to step down the thread very gradually, using several different dies.

The screws are brittle and will stand only a small amount of torsion or strain. In cases in which cortical bone is passed through, it is necessary to drill and tap the hole before placing the screws. The drilling may be done with the electric or the hand drill, but the tapping must be carefully done by hand.

Beef-bone screws have been very efficient in maintaining coaptation in spiral and oblique fractures of long bones, fractures of the neck of the femur, fractures of the olecranon, and certain fractures of the patella. The author has found them excellent also in fixing bone grafts to the spinous processes as in the Albee operation for tuberculosis of the spine.

In delayed union and ununited fractures Henderson transplants a very large graft, using as a rule a piece of the tibia or the entire thickness of the fibula. In order to meet the flattened surface of the graft one side of the bone is surfaced for a good distance above and below the fracture. Two or more beef-bone screws are then placed through the remains of the proximal cortex and the opposite cortex of each fragment.

The author endeavors to have at the completion of his operation about 25 per cent more bone in the fracture area than there is normally.

A. J. Scholl, Jr.

Babcock, W. W.: Further Observations on a New Method for the Immediate Sterilization and Closure of Chronic Infected Wounds of Bones and Soft Tissues. *Am. J. Surg.*, 1920, xxxiv, 81.

The author believes that the forcible injection of a strong solution of zinc chloride into bony sinuses may lead to the penetration of small blood vessels and such a sudden entrance of the caustic into the blood stream that the central organs are reached before the chloride can be neutralized. As a result, a very serious, if not immediately fatal condition may develop. This may be avoided by keeping a proximal tourniquet applied during the injection of the chloride solution and for five minutes thereafter. If the sinuses involve parts of the body, such as the pelvis or throat, which cannot well be shut off by a tourniquet, the sinuses should be carefully packed with small pledgets of cotton moistened with the zinc solution. A second danger of the method to which attention is called lies in the operator's failure to excise all chlorided tissues before closing the wound.

If the precautions indicated are carefully followed, however, the method does not add to the danger of the operation and greatly reduces the later morbidity. In the after-treatment experience has emphasized the importance of rest, very careful support, and accurate fixation.

Irrigations or injections into the wound are contra-indicated and as a rule the use of drains in the after-treatment is to be avoided. The patient should be kept in bed the first two weeks and wet mildly antiseptic dressings should be applied continuously. Babcock has found that in these closed cases Dakin's solution is harmful.

None of the author's patients had been treated less than seven months before the method was tried. Most of them had received months of Carrel-Dakin treatment, and the number of previous operations varied from one to nine. In Babcock's opinion from 70 to 94 per cent of chronic bone sinuses can be closed successfully by the method described, the percentage depending upon the thoroughness of the treatment, the character of the lesion, and the degree of destruction of the adjacent soft tissues.

The method is especially adapted to the treatment of osteomyelitis, septic compound fractures, chronic abscesses, and sinuses, and consists of four procedures carried out in one operation.

1. Immediate chemical sterilization of all sinuses and wound surfaces by the injection and application of a saturated solution of zinc chloride.
2. Delineation of infected areas by the injection of an ethereal solution of methylene blue.
3. Mass excision of the entire area of infection.
4. Wound closure with the obliteration of all dead spaces. E. C. ROBITSHEK.

ORTHOPEDICS IN GENERAL

Myers, A.: Personal Observations of the Early, Intermediate, and Late Treatment of 1,000 Cases of Infantile Paralysis from an Orthopedic Surgeon's Viewpoint. *Charlotte, M. J.*, 1920, lxxxi, 95.

The author deplores the neglect of correct treatment that is evident in a great number of cases of poliomyelitis and gives a brief résumé of the accepted methods for the various stages of the paralysis. The greatest fault he considers is the use of electricity instead of absolute rest in the early stages.

In the early or acute stage the only treatment indicated is immobilization with plaster of Paris casts or braces and rest in bed followed by very slowly increased massage and muscle training with especial care not to overstretch the weakened muscles.

After the immobilization period braces are necessary to hold the joints in the corrected position for from six months to a year before strain or weight-bearing is allowed. If contractions have occurred, slight stretching may be sufficient or tendon lengthening and transplantations may be done.

For flail joints and deformities from stretched ligaments immobilization is obtained by various methods of arthrodesis and the Hibb's operation on the spine. After these conditions have been corrected and also in the late stages when atrophy is present massage and muscle training should be given daily. R. G. PACKARD.

SURGERY OF THE SPINAL COLUMN AND CORD

Marshall, H. W.: The Treatment of Back Injuries with Special Reference to Spinal Fractures That Are Not Associated with Cord Symptoms. *Boston M. & S. J.*, 1920, clxxxii, 140.

The author bases his discussion on a series of thirty cases. Spinal fracture without cord symptoms has been shown by careful diagnostic methods to be much more common than was formerly supposed. The disability is usually prolonged, but in some cases functional recovery is practically perfect. One case is cited in which the patient showed a back strength test of 320 lbs three months after the injury. No statement is made regarding the treatment given in this instance except that the spine was not grafted.

In the author's opinion the disability is due to two causes: (1) ruptures and strain of posterior groups of spinal ligaments and muscles, and (2) crushings of cancellous bodies of vertebræ with associated relaxation of anterior spinal igaments. In cases of the first class the best results are obtained by bone grafting. After grafting the author applies mechanical support. Immobilization should not be unduly prolonged. Periods of rest and graded exercise should be alternated.

Marshall describes a back brace which is a modification of the Taylor brace and designed to prevent a twisting motion of the spine as well as bending motions. Great care should be taken to see that the brace is really efficient. In addition to the brace, massage, manipulation, and other physiotherapeutic agents should be used as well as internal medical measures and general hygiene to improve the patient's general condition. BEVERIDGE MOORE.

Elsberg, C. A.: Concerning Spinal Cord Tumors and Their Surgical Treatment. *Am. J. M. Sc.*, 1920, clix, 194.

This paper is based upon 67 spinal cord tumors operated upon by the author. Primary and secondary growths of the bones are not included.

Three-fourths of the tumors were extramedullary and 62 per cent intradural. The most frequent location was between the fifth cervical and the third dorsal segments of the cord, and next in frequency, between the ninth dorsal and the first lumbar segments. As a rule the growths occurred on the posterior aspect of the cord and frequently were found to the side, behind, or in front of the posterior roots, the dentate ligament, or the anterior spinal roots. Seventy-seven per cent of the extramedullary growths were on the posterior or the posterolateral aspect.

The anterolateral tumors rarely began with root pains and before operation it was often difficult to distinguish them from intramedullary growths. From the appearance of the spinal cord it was impossible to determine whether or not the damage done was irremediable. Small hard tumors caused earlier and more severe cord lesions than tumors that were large and soft, but great improvement occurred even when the cord was markedly flattened.

The diagnosis of cord tumor was made or the presence of a cord tumor was suspected in 60 of the 67 cases and in the 7 others a tumor was considered to be one of the possibilities. The level diagnosis was correct in 48 cases. In 14, the growth was found from one to three segments above the suspected level, and in 2, one or two segments below it. In 3

cases the level diagnosis was altogether wrong and a second operation was necessary. In 2 of these cases the tumor was ten segments higher than the suspected level, and in one, six segments lower.

The technical procedures involved in the operation of laminectomy are seldom difficult. Tumors on the posterior surface are removed easily. Those under a nerve root or a slip of the dentate ligament should not be pulled out; the root or ligamentous slip should be divided. In removing tumors situated in front of the cord great care is necessary and much more of the laminæ must be removed so that access to the front of the cord may be more direct.

Of the 67 tumors, 31 were extramedullary, 11 in the cauda equina, 7 extradural, and 18 intramedullary.

The tumor was entirely removed in 39 cases and partly removed in 11. In 17 it was impossible to remove it (12 intramedullary, 3 extradural, 2 between the roots of the cauda equina).

Sixty of the patients recovered (90 per cent). Of the operations for extramedullary tumors 94 per cent were successful, while of those for intramedullary growths, 89 per cent effected a cure. A number of the patients were operated upon many years ago. The mortality of these operations should be less than 6 per cent. BEVERIDGE MOORE.

Zeno, A. and Boden, A.: Fistulæ and Sacrococcygeal Cysts (Fistulas y quistes sacrocoxigeos). *Semana méd.*, 1920, xxvii, 181.

The author has made a detailed study of 28 cases of congenital fistulæ and cysts of the sacrococcygeal region. These malformations are more common in males (25 of this series were in men and 3 in women) and as a rule are found in persons who tend toward obesity. Usually they do not become evident until early adult life, between the twentieth and thirtieth years. At first a tumor is noticed which increases in size gradually and is often painful, or a fistula is present which either discharges pus or merely soils the clothing. The patient usually considers these lesions to be due to trauma and often there is secondary infection.

The cysts are located in the median line and are not inflammatory. The fistulæ when explored with a probe are found to terminate at the end of the coccyx or sacrum. They must be differentiated from fistula in ano and tuberculous fistulæ of osseous origin.

The operative treatment should consist of complete radical excision with drainage and secondary closure, primary closure, or transplantation of fat. Drainage and secondary closure are indicated in cases of acute or subacute infection when the fistulæ are numerous and the cavity is large. Primary closure is the ideal method but can be employed only when the cyst or fistula is small and infection is slight or absent. Transplantation of fat cannot be done in the presence of infection but is very successful in non-infected cases.

As there is no tendency toward spontaneous cure, palliative treatments such as simple incision and drainage, cauterization, and the injection of caustic substances and bismuth paste always fail.

W. R. MEEKER.

MISCELLANEOUS

CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Hamel, O.: The Clinical Picture of Starvation Osteopathy (Zum klinischen Bilde der Hungerosteopathie). *Deutsche med. Wchnschr.*, 1920, iii, 68.

Hamel reports 6 cases of starvation osteopathy. The clinical picture simulated that of late rickets ranging in severity from the mildest form to spontaneous fracture.

Mild cases are often overlooked, being regarded as due to weakening of the arches of the foot, muscular rheumatism, etc.

Four of the author's patients had had infantile rickets. In 2 cases the signs of tetany were observed. The outcome was favorable. A cure was demonstrated by the X-ray which showed the disappearance of the epiphyseal separation and the consolidation of the bone.

The treatment consisted of a substantial diet, rest, the administration of cod-liver oil, and the induction of active and intense focal hyperæmia.

SIMON (Z).

Heyer: Starvation Bone Disease in Munich (Hungerknochenerkrankungen in München). *München med. Wchnschr.*, 1920, lxvii, 98.

In 9 cases this "osteomalacia of war" developed with pain in the back and extremities, a tired feeling, and difficulty in walking. In several cases the body became shorter. The rapid development of the illness is characteristic. Scoliosis, changes in the contour of the pelvis, and spontaneous fractures occur. The blood picture shows a normal red cell count, decreased hæmoglobin, and leukopænia. The X-ray picture shows the bone structure indistinct and the cortex thinner than normal.

Therapeutically cod-liver oil containing phosphorus has been of value in addition to an increase in the diet. The etiology of the condition is not clear. JLOSE (Z).

Forgue, E., and Chauvin, E.: Tuberculosis of Ovarian Cysts (La tuberculose des kystes de l'ovaire). *Rev. de chir.*, Par., 1919, lvii, 881.

The first case of tuberculosis of an ovarian cyst was reported by Spencer Wells in 1863. In the literature since that time only 35 authentic cases

are to be found. Short clinical histories of these are given in this article.

The author's case was that of a woman 25 years of age who entered the hospital with a history of abdominal trouble, irregular menstruation, etc. Examination disclosed the presence of a round soft mass in the region of the pouch of Douglas which extended to the umbilicus. A diagnosis of adnexitis with cystic formation was made.

At operation an ovarian cyst the size of an orange was found. The right tube was matted with the intestines and formed a pyosalpinx the size of an egg which was full of greenish caseous pus. Both tubes and the cyst were strongly adherent to the bladder and neighboring organs. A subtotal hysterectomy was done and was followed by normal recovery.

Histologic examination of the mass showed a massive genital tuberculosis involving the uterus, the tubes, and the ovarian cyst. The primary site of the tuberculosis was the tube. The localization of the lesions in the vicinity of the tubal orifices demonstrated that the uterus was the next portion invaded. The ovarian cyst appeared to have been infected by the lymphatic route as there was a very definite lymphangitis of its fibrous layer.

In the majority of the cases reported in the literature the patients were married women. Only 7 were young girls. Pregnancy does not appear to be a predisposing factor as only 4 of the patients had borne children. The condition may involve either ovary. The conclusions drawn from the histories reviewed are as follows:

1. Tuberculosis of ovarian cysts may occur in any one of three forms: (1) in tubo-ovarian cysts with a common cavity; (2) as an external superficial condition which usually is associated with peritoneal tuberculosis; and (3) as a deep or cavitary tuberculosis.

2. As a rule tuberculosis of an ovarian cyst is associated with other tuberculous lesions which usually are situated in the genital tract.

3. The tubercle bacilli are rarely found in the lesions of cystic tuberculosis.

4. The diagnosis of tuberculosis may be made from a cytological examination of the fluid contained in the tuberculous cyst.

In the majority of cases the infection has spread from some distant focus. Remote foci may infect an ovarian cyst by the blood stream; neighboring regions may reach it by the lymphatics; and neighboring infected organs may infect it by contact. W. A. BRENNAN.

Fraser, J.: Hæmangioma Group of Endotheliblastomata. *Brit. J. Surg.*, 1920, vii, 335.

The author defines endothelioblastomata as tumors of mesenchymal origin, the cells of which tend to differentiate into flat endothelial cells like those lining the interior of blood and lymph vessels and the inner surface of certain cavities and spaces such as the arachnoid and subdural spaces. The hæmangio-endothelioblastomata, with which this article deals, are derived from the endothelial cells lining the blood vessels.

There is much confusion as to the terminology and and classification of hæmangiomata. The term "nævus," which is frequently improperly applied to this group of tumors, should be used only to designate pigmented tumors which are classified as melanomata. The term "hæmangioma" should be limited to tumors in which there is a new formation of vessels or a proliferation of vessel walls. Aneurisms and varicose veins are thus excluded.

The older classification of hæmangiomata as capillary, venous, and arterial is no longer tenable if the author's definition of the term is correct. Hæmangiomata arise from the endothelium which lines the vessel wall and it is therefore more reasonable to base their classification upon their variety of histologic structure and especially on their density. The most suggestive classification would be one which divides them into compact, capillary, and cavernous types.

Hæmangiomata are congenital in origin. The first vessels which appear in the embryo are found in the mesoderm and subsequently develop in its derivatives in all parts of the animal body. In the author's opinion hæmangiomata are developed from "rests" of this embryonic tissue. The small multiple angiomata which appear after middle age, the so-called "de Morgan spots," may be of similar origin or originate from the endothelium of fully developed capillaries as a result of degenerative changes in the capillary wall and the escape of endothelial cells beyond the confines of the capillary lumen.

With regard to its histologic structure Fraser states that the endothelial cell is not highly differentiated morphologically. In this respect it differs from the other more characteristic cells. Individually it is a large flat cell with an oval nucleus surrounded by a moderate amount of delicate cytoplasm.

During the development of the tumor the endothelial cells proliferate and tend to arrange themselves in the form of blood vessels as under normal conditions. The most simple form of hæmangioma, therefore, consists of a collection of embryonic blood vessels. The endothelial cells which form the wall are relatively thick, thus differing from those lining fully developed capillaries. Many of these cells show active division and numerous mitotic figures. The connective-tissue stroma, normally very small in amount, may be so abundant that the tumor appears to be more or less scirrhous. The lumen of the vessel is usually empty, but occasionally may contain a few immature or degenerate corpuscular elements.

Active proliferation of the endothelial cells is constantly taking place. In the accumulation of several endothelial cells which have proliferated from the walls of an existing vessel a vacuole makes its appearance and its enlargement establishes the lumen of a future vessel. Further extension of the

tumor takes place by infiltration invading lobules of fat tissue, nerves and muscle fibers.

The lumina of the cells do not communicate with the general blood stream except under certain conditions. The blood supply comes from small arteries, capillaries, and veins circulating within the tumor.

After the early stage described the further evolution of the tumor may proceed in any one of four directions: (1) the growth may become arrested and spontaneous cure may result by a process of fibrosis; (2) while retaining the characteristics of a capillary hæmangioma the tumor may continue to grow by infiltrating the surrounding parts; (3) the original capillary type of hæmangioma may become converted into the cavernous type; (4) the original capillary type of tumor may become converted into what is termed the "compact" type. The strong persistent tendency toward spontaneous cure depends upon a deficient and diminishing blood supply. The infiltration of the tumor may be very destructive and extensive and in some cases resemble metastasis. Nerve tissue particularly seems to have very little resistance to the infiltration.

In the development of the cavernous type of hæmangioma the embryonic capillary tissue develops a connection with the circulation. The pressure of the circulating blood causes distention of the embryonic vessels and a thinning of the endothelial lining. A tumor in which this change has become general is unusual as in almost every instance the cavernous type is associated with the capillary type.

The compact type of hæmangioma develops when the endothelial cells lining a tumor of the capillary type proliferate actively. No explanation can be offered for this proliferation. Instead of forming vessels the multiplying cells collect in rows, masses, whorls, and groups. Generally this proliferation is perivascular in type, but occasionally endovascular. The compact variety of tumor is definitely localized and infiltration is exceptional. A definite capsule of fibrous tissue with septa extending inward gives the tumor a lobular form. Some pigment may be formed by the degeneration of blood corpuscles retained between the endothelial cells. If this pigment is present in large amounts, it makes the growth yellowish and may lead to a mistaken diagnosis of xanthoma. F. M. ALLEN.

Saul, E.: Investigations Regarding the Etiology and Biology of Tumors; Condyloma Acuminatum, Verruca Vulgaris, Cholesteatoma (Untersuchungen zur Aetiologie und Biologie der Tumoren; Condyloma Acuminatum, Verruca Vulgaris, Cholesteatoma). *Zentralbl. f. Bakteriol.*, 1920, lxxxiv, 20.

The hyperplasia in which tumor rests have their origin begins in the "tumor mother cell." When irritated, this cell continues to grow abnormally even long after the irritation has been removed. The toxins produced by agencies causing inflammation may produce either an inflammation or a tumor, according to the circumstances of the particular case.

Saul investigated the etiology of condyloma acuminatum, verruca vulgaris, and cholesteatoma. The first is a fibro-epithelioma; the second, an epithelioma. In the smears he found streptococci which produce inflammation as well as tumor irritation. His findings are corroborated by the experiments of others.

In the development of the cholesteatoma chronic purulent otitis media undoubtedly plays an important part. Predisposition, however, is also necessary. The true cholesteatoma is due to aberrant organisms the growth of which is stimulated by the metabolic toxins of the host. The fundamental cause of the plexus-cholesteatoma of the horse is also a streptococcic infection which leads to inflammation of the vessels, cholesterin deposits, and thrombosis. KLEINSCHMIDT (Z).

Moore, W. H., and Wander, W. G.; Camphor-Oil Tumors. *Arch. Dermat. & Syph.*, 1920, n.s.i., 304.

The authors report 6 cases of camphor-oil tumors to show the danger of using camphor oil indiscriminately in operating rooms and the treatment of certain severe illnesses. The duration of the tumors in these cases varied from two weeks to a year and a half. In most instances the patient's attention was first attracted to the condition by inflammatory activity. In all of the cases the tumors developed on the arms and in some instances also on the thighs. The general clinical picture was as follows:

After the injection of camphor oil for some illness deep lumps appeared on the arms or on the arms and thighs. If not inflamed, these had a doughy or concrete-like infiltration. As a rule they were lobulated, linear in outline, and limited by definite sharp angles. Their size varied from that of a walnut to that of an orange, according to the amount of oil which had been injected and the patient's reaction. Bead-like and smaller infiltrations of the same character could be traced toward the axilla and around the periphery. In some cases the skin surface was elevated or discolored, while in others palpation was the only method by which the lumps could be detected. The tumors were always deep in the connective tissue or muscle. In some cases they were tender and painful while in others tenderness and pain were absent. When the tumors were inflamed the process was of long duration and the color of the skin varied from red to deep purple, depending on the degree of the inflammation. The local temperature of a tumor was higher than that of the surrounding skin. Necrosis did not occur in any case.

The histologic examination revealed what was at first believed to be a fibroma honeycombed with holes distributed irregularly, the largest of which were 3 mm. in diameter. In some areas the tumor had the appearance of fatty tissue. The injected

oil was deposited in the connective tissue and lymph spaces where it remained as an inert foreign body. The localized pressure stimulated a low grade of temporary inflammation with the gradual formation of new connective and fibrous tissue. The epidermis remained unchanged until involved by the inflammation. The elastic tissue under the epidermis was unaltered. In the early stages the lesion might be considered a true fibroma but after inflammatory changes have taken place it has the characteristics of a granuloma. The oil was found to be retained in the form of large and small drops. The capsule was made up of from 2 to 5 concentric rings of fibrous connective tissue. The old and newly-formed blood vessels and the walls of the capillaries were greatly thickened. In the first case reported an inflammatory tumor was diagnosed on histologic examination as due to tuberculosis because of its granulomatous character and many giant cells.

In the treatment the best results have been obtained by rest and the elevation of the affected part to overcome the inflammation. These measures should be continued over long periods of time until the fibrosis is as complete as possible. Excision would be the ideal treatment if the lesion were not so extensive. Heat and massage are contra-indicated as they increase the inflammatory condition and may cause its dissemination into larger areas. Roentgen-ray treatment is of doubtful value and may be more or less dangerous because of its possible effect on the already disturbed circulatory balance of the tumor mass. I. W. BACH.

McCoy, J. N.: The Solar Keratoses and Cutaneous Cancer. *Arch. Dermat. & Syph.* 1920, n.s.i, 173.

The author states that 37.8 per cent of all cancers are on the exposed skin. Keratoses precede all cutaneous cancers except those situated at the mucocutaneous juncture of the lower lip. The latter are due to other forms of trauma, this region being remarkably free from keratotic formation. Keratoses are due to the chemical action on the skin of the violet and ultra-violet rays.

Pigmentation of the skin is evidently a factor preventing the formation of keratoses as keratoses and carcinoma are infrequent in dark skinned people. Sixty-two per cent of the author's patients were blondes, 7 per cent were dark skinned, and 31 per cent were persons with dark hair but only slightly pigmented skin.

White clay soil, water, white or gray stone roads enhance the effect of the rays by reflection, and it has been noted that where such factors predominate keratoses and cancer are more frequent than in other regions. K. L. VEHE.

Bryant, F.: Malignancy and Radiation; A Study of the Relation of the Structure of Cancer Tissue to Radiation. *Boston M. & S. J.*, 1920, clxxxii, 263.

In spite of all the time, effort, and money expended in cancer research, exact scientific knowledge of malignancy is still very incomplete. Much has been learned, however, regarding the history of the disease and the factors controlling it. It is known that cancer has afflicted humanity from the earliest times and is therefore not a product of civilization. It is known also that it is not hereditary, infectious, or communicable. In its incipient stage it is a local or regional disease and amenable to surgical cure. It is generally believed to follow chronic stimulative irritation, constant or intermittent, traumatic or chemical, perceptible or imperceptible. According to Mallory "the exact manner in which cancer arises is not definitely known, but it seems to be due not to direct stimulation of the epithelium but to injury done to connective tissue and the blood vessels, as a result of which excessive regenerative efforts on the part of the epithelium are called forth."

The age period at which cancer is most apt to develop is after the forty-fifth year. In each anatomical locality it differs in its rapidity of growth, tendency to form metastases, and response to treatment.

Every higher organism has its origin in a single cell. This cell proliferates by division and forms the epiblast, mesoblast, and hypoblast. These in turn multiply and differentiate into fifteen different types of cells and the latter may in time develop into tumors. According to Swift "not the highest, but the lowest, organisms are most prolific."

In the treatment of cancer radiation and surgery give the best results, radiation being perhaps the better of the two. The mode of action of radiation is not yet well established but it is believed that it acts first upon the newly formed cells, at the same time exerting a destructive influence upon the fresh sources of blood supply, and that in response to nature's call for repair a proliferation of connective tissue results. If the intensity of the radiation is insufficient, the cell may be rendered dormant only temporarily, while if it is too intense the surrounding normal tissue may be broken down and nature's repair and resistant properties entirely destroyed.

It has become more and more apparent that the successful use of radium in the treatment of cancer requires careful consideration of each type of the disease. Some tumors require much more radiation for their destruction than others. Chondromata and tumors of osteogenetic origin react slowly. Sarcomatous growths react much more quickly than carcinomata. Basal-cell epithelioma of the skin is the most easily destroyed, while epidermoid carcinoma of the tongue is the most hopeless. Next in resistance to treatment comes carcinoma of the rectum.

The condition of the tissues surrounding the tumor mass must also be carefully considered. This is influenced by age, vitality, habits, and disease. For example, persons with tuberculosis or syphilis are poor subjects for radiation, and the older the tumor the less apt it is to yield to radiation. An infection of the growth is a contra-indication for radiation. Before and after operation radiation is always to be

advised. Before operation it is of value to render the growth less malignant, to cover all possible routes of metastasis, and to render uninvolved lymphatics immune to invasion by bringing about a sclerosis. After operation it is indicated to destroy any scattered cells which may have escaped previous treatment. In inoperable cases radiation is recommended to prolong life, lessen pain, and check hæmorrhage and discharges.

As to the comparative values of radium and the roentgen ray it is safe to state that radium is admirably fitted and far superior to the roentgen ray for the treatment of growths in cavities or areas in which it can be used in needle form or emanation tubes, while the roentgen ray is better adapted for use on large surface areas, including the mass or the scar of the wound, the metastases, and the lymphatic distribution. LOUIS HANDELMAN.

Smith, J. M.: The Etiology, Treatment, and Results of Cholesteatoma. *N. York M. J.*, 1920, cxi, 495.

The consensus of opinion is that cholesteatoma is due to an overproduction of epithelial tissue, the foothold being obtained by direct extension into the middle ear through a break in the tympanic and mucous membranes, or a metaplasia of the tissues in the tympanic cavity.

Two types are recognized, the encapsulated and the non-encapsulated. In the encapsulated type a pearl-like sac is contained in the cavity which is lined by a single layer of short columnar or cubical epithelium resting on a thin fibrovascular endosteum. The sac itself consists of a somewhat thickened fibrovascular sheath containing a few plasma cells and lined by stratified epithelium. Eleidin granules are found in this layer. In the author's opinion this is a true metaplasia.

In the non-encapsulated type a granuloma is embedded in loose lymphocytes, leucocytes, and myelocytes in all stages of fatty and granular degeneration, blood, pus and bacteria of all kinds, spicules of bone, and squamous cells in loose or laminated pearls. Cases are reported in which there was no evidence of perforation of the ear drum. Probably in such instances the perforation closed after the process had begun.

It is not always possible to make a diagnosis. Some of the cheesy mass may be removed directly from the external auditory canal or tympanum for examination. Smears made from a chronic discharging ear which show at each examination dead epithelium and cholesterin crystals may suggest the condition. Experience teaches that all cholesteatomata are dangerous even though sterile. If uninterrupted, the mass continues to enlarge and destroys not only the soft tissues, but the bony tissues as well. Therefore the danger is due to a secondary intracranial infection.

In the treatment the field should be rendered smooth and as free as possible from bony recesses. Radical operation is the only method of procedure. By operation the auditory canal is enlarged and the middle ear, the antrum, and the mastoid are converted into one continuous cavity. A cure results if in the after-treatment the formation of granulation tissue is prevented and the cavity dermatizes.

The author considers the prognosis good, especially in cases in which the patient is operated upon in time. He believes that in a large majority of cases failure is due to faulty technique at the time of operation or in the after-treatment.

I. W. BACH.

BLOOD

Otani, M.: A New Method of Phagocytosis Test with the Blood Plasma; A Specific Immunological Reaction. *Med. Record*, 1920, xcvii, 439.

The technique of the author's method of testing phagocytosis is much more simple than that of Wright's opsonin test. The method is based on the fact that citrated or oxalated blood plasma of patients infected by certain species of pathogenic micro-organisms has a remarkably augmented phagocytal power against that particular species of micro-organism.

Citrated blood is prepared by mixing 0.1 ccm. of a 2 per cent solution of neutral sodium citrate and 0.2 ccm. of fresh blood. Plasma obtained by centrifugalizing citrated blood can be kept in good condition in a refrigerator for two weeks. In testing human blood, the citrated blood and its leucocytes can generally be employed directly as such, but in the test with the plasma against tubercle bacilli or staphylococci, the leucocytes must be washed because of the difficulty of obtaining normal blood. The blood is collected from the finger tip in 7 ccm. of a 0.7 per cent sodium citrate solution and is centrifugalized, the supernatant fluid being removed. In preparing the bacillary suspension for the test a strongly virulent strain should be employed. With the typhoid group of bacilli, bacillus dysenteriæ, and bacillus coli, use is made of eighteen-hour agar cultures of the strength 1.0 mgm. of the bacilli suspended in every 1.0 ccm. of a 1.5 per cent sodium citrate solution prepared with physiological salt solution. The article contains a detailed description of the preparation of the suspension of tubercle bacilli.

For the testing of human blood or horse blood the citrated blood method is most convenient, two volumes of the citrated blood to be tested and one volume of bacillary suspension being used. The citrated blood should be mixed with the bacillary emulsion within at least two hours after its collection. The normal leucocytes are necessary for a control.

The blood-plasma method must be employed in cases in which there is leucopænia, as in typhoid fever, and cases in which the test is made after longer intervals of time. It is therefore of value especially for the laboratory test. It can be employed

also in testing rabbit or guinea-pig blood for which the citrated-blood method is not suitable. When a genuine normal blood is obtainable and when the blood of a typhoid or dysenteric case is to be tested, the quantities used are: blood plasma to be tested, 1 volume; citrated normal blood, 2 volumes; bacillary suspension, 1 volume. When it is impossible to obtain a genuine normal blood and the blood of a tuberculous patient is to be tested the quantities are: blood plasma to be tested, 1 volume; washed leucocytes, 1 volume; bacillary suspension, 1 volume. In the control test for each of these two systems the blood plasma to be tested is replaced by the same quantity of a 0.7 per cent sodium citrate solution.

Directions are given for the preparation of microscopic slides, including the smearing, fixation, and staining of the tubercle bacillus, dysentery bacillus, and the bacilli of the typhoid group. The method of calculating and interpreting the results is also described. W. H. NADLER.

Emmel, V. E., Levinson, S. A., and Fisch, M. E.: Coagulation in Embryonic Blood. *J. Exper. M.*, 1920, xxxi, 177.

In the course of an experimental study of the origin of non-nucleated erythrocytes Emmel previously observed that the coagulation time of embryonic blood is slower than that of adult blood and that there are other striking differences. In this article are presented the findings of a more extended study undertaken to ascertain: (1) the facts regarding the coagulation time of embryonic blood; (2) the extent to which the factors essential to coagulation are comparable in the embryo and adult; and (3) the conditions in embryonic blood which might possibly explain certain types of abnormal coagulation occurring in postnatal life.

The study was confined largely to pig embryos 100 to 270 mm. in length. These were obtained from the uterus under favorable conditions within a short interval after the sow was killed. Use was made only of embryos in apparently normal condition in which the hearts were still beating or would respond to stimulation. This was a point of considerable importance since it was found that in the blood of embryos in which the hearts were not beating the coagulation time was materially reduced.

The average coagulation time of the blood of the embryos was found to be about twenty-three minutes, from six to eight times greater than that of adult blood.

The first evidence of coagulation in the embryonic blood consisted in the appearance of small masses of fibrin which almost invariably were deposited at the side of the test-tube. The resulting coagulum was as a rule a sliding clot, never attaining any marked degree of density or firmness.

In the attempt to determine the cause of this greater coagulation time of embryonic blood it was found that the blood platelets varied numerically from 415,000 to 800,000 per cubic centimeter, a content not differing greatly from that of the adult blood in which the number was about 588,000, varying from 544,000 to 932,000.

The addition to the embryonic blood of platelet material obtained from adult pig blood reduced the coagulation time to an average of eight and four-tenths minutes, a decrease of 75 per cent, while the addition of 2 drops of 0.5 per cent calcium chloride reduced it to an average of ten and three-tenths minutes, a reduction of over 50 per cent.

Following the addition of tissue extract the coagulation time was reduced to an average of three and seven-tenths minutes when it was approximately equal to that of adult blood. The clot resulting was much firmer than that obtained in either the normal coagulation or after the addition of calcium chloride.

Chemical analysis demonstrated an excess of calcium in embryonic blood as compared with adult blood in the proportion of 7:5.

From the various determinations it was evident that the calcium in embryonic blood must be present in some combined form. This conclusion was supported by experiments in which barium and magnesium brought about a reduction in the coagulation time of non-oxalated embryonic blood but not in oxalated blood, a fact which indicated that in the former case free calcium ions were liberated. In oxalated blood it was found also that under certain conditions coagulation could be brought about by the addition of tissue extract.

That the fibrinogen content was of no importance in the coagulation time was shown by the fact that although the maximum amount of fibrin obtained by defibrination of embryonic blood was only about 12 per cent of that obtained from adult blood, the coagulation time of embryonic blood upon the addition of tissue extract became equivalent to that of adult blood.

The presence of bile was also demonstrated in the circulating blood of the embryos studied and it was found also that the addition of bile to adult blood produced conditions essentially identical with those of embryonic blood. Therefore as no significant differences could be demonstrated between the blood of the embryo and adult animal other than the presence of bile in the former, the conclusion seems justified that, in pig embryos from 100 to 270 mm. long, bile is the primary factor accounting for the greater coagulation time of the embryonic blood. A condition in the embryonic blood comparable in some respects to that of icterus was also indicated.

The results of the experiments with calcium were apparently due to the introduction of the calcium ions in excess of the amount which enters into chemical combination with the bile present. When tissue extract was used it appeared that the free calcium ions essential for the initiation of coagulation were liberated by some interaction with the constituents of the bile.

From these findings it seems evident that the normal coagulation of embryonic blood involves a process which is comparable to that obtained after the addition of tissue extract or cephalin but on a smaller scale. In the embryonic blood *in vitro* a certain amount of tissue substance (cephalin?) was slowly set free in the plasma through the gradual disintegration of cellular elements, the bile was neutralized, and a sufficient amount of calcium was ultimately liberated to bring about coagulation.

G. E. Beilby.

Miller, A. H.: Blood Pressure in Operative Surgery. *J. Am. M. Ass.*, 1920, lxxiv, 514.

Blood pressure is an important factor in surgery and therefore should always be determined before operation.

The normal ratio between the pulse pressure and diastolic pressure is between 40 and 60 per cent. If the ratio lies between 25 and 75 per cent the case is probably operable; if it is outside these limits the case is probably inoperable.

During operation blood-pressure tests furnish a valuable index as to surgical shock, hæmorrhage, and the anæsthetic dosage. The pressure should be determined by the anæsthetist every ten minutes. This can be done by means of long tubing attached to the stethoscope which, with the sphygmomanometer, should be fastened in place.

Changes are produced by excitement, obstruction to respiration, the use of too much anæsthetic, changes in the patient's position, variations in the temperature of the operating room, hæmorrhage, and operative manipulation. A low temperature in the operating room, a large incision, and exposure of the viscera will cause a considerable fall in the blood pressure.

When the patient is in the dorsal position the systolic pressure does not increase or diminish. When he is placed in the lithotomy position, it increases. The combined lithotomy and Trendelenburg position greatly increases the systolic pressure, while the Trendelenburg position and the Fowler position both decrease it, the latter considerably. The Fowler position should not be used after or during operation unless the patient's condition is satisfactory.

Cyanosis raises the systolic pressure, excitement raises both the systolic and the diastolic pressure, and profound general anæsthesia may lower both of them. Spinal anæsthesia causes a distinct drop which may prove dangerous.

Surgical shock is indicated by an increasing pulse rate with a falling blood pressure. It has occurred when the pulse rate was over 120 and the diastolic pressure under 80.

The sphygmomanometer should be used not only in selected cases, but as a routine measure. By means of it the anæsthetist will become accustomed to the normal variations in the blood pressure during operations and more easily detect signs of danger.

W. H. Hobart.

BLOOD AND LYMPH VESSELS

O'Hare, J. P.: Vascular Reactions in Vascular Hypertension. *Am. J. M. Sc.*, 1920, clix, 369.

The observation that 1/100 gr. of nitroglycerin administered in cases of vascular hypertension causes a startling fall in blood pressure and a condition bordering on collapse, a reaction apparently counteracted by the injection of adrenalin, stimulated the author to a study of vascular reactions. From his determinations of the variations in pressure produced by nitroglycerin, rest, excitement, exercise, and adrenalin, he offers the following conclusions:

1. The vasomotor system in vascular hypertension is extremely labile and sensitive.
2. Mental and physical rest cause a marked fall in pressure.
3. Excitation causes a more marked abrupt rise in pressure.
4. Exercise usually results in a rise similar to that following excitation.
5. Nitroglycerin produces practically no fall in pressure and following its absorption there is often a primary rise.
6. The vessels are especially sensitive to the intramuscular injection of adrenalin, a marked rise in pressure taking place immediately after such an injection.

The use of adrenalin in cases of vascular hypertension, therefore, appears to be not without danger.

W H. Nadler.

GENERAL BACTERIAL INFECTIONS

Vernoni, G.: Tetanus Following Serum Treatment (Sul tetano postsierico). *Chir. d. organi di movimento*, 1919, iii, 153.

Following inadequate prophylactic treatment with antitetanus serum the period of incubation of the tetanus may be simply prolonged and the tetanus may have all the clinical characteristics of ordinary tetanus in patients who have not been given prophylactic treatment. In other cases a short incubation period is followed by sudden onset of the disease and the symptoms differ from those of ordinary tetanus. In still other cases the period of incubation is prolonged and the tetanus is not very severe.

In Vernoni's opinion repeated intravenous injections of heterogeneous serum cause the development of anaphylaxis and the hyperpyrexia is a form of anaphylactic crisis provoked by autogenous antigens, viz., muscle metaproteins. In some cases patients who are believed to be recovering because of the disappearance of the symptoms of tetanus suddenly become worse and die within a few hours with symptoms of a severe intoxication and a very high fever. In such instances it is most probable that the efforts of the body to overcome the toxins fail and the fatal outcome is due to a general intoxication.

The treatment of tetanus following serum treatment does not differ much from that of ordinary tetanus. Vernoni prefers intraspinal injections of between 40 and 50 ccm. of antitetanus serum. The injections should be made not only into the dural sac but also into the peridural space and should be preceded by the evacuation of the maximum quantity of cerebrospinal fluid. A second intraspinal injection may be made not later than between twelve and twenty-four hours after the first injection. In addition, intramuscular injections should be given. Intravenous injections, however, are superfluous. Repeated intestinal lavage is another important factor in the treatment.

W. A. Brennan.

Razzaboni, G.: An Anatomical and Clinical Study of the Action of Certain Organs and Systems in Gas Gangrene (Studio anatomo-clinico sul comportamento di taluni organi e sistemi nella gangrena gassosa). *Arch. ital. di chir.*, 1919, i, 322.

Gas-bacillus infection of wounds, so common during the recent war, has been studied very extensively, both clinically and experimentally, and practically all phases of the subject are well understood except the treatment. The etiology, diagnosis, symptoms, and local pathology have been described minutely, but the histologic findings in areas remote from the site of the local lesion and the behavior of certain organs and systems have been neglected although they often determine the character of the outcome. Even in the thorough monographs of Charlier, Weinberg, Legue, and Aperlo these subjects are dwelt upon very lightly.

The author describes the general symptoms of gas gangrene in detail. At the outset the condition is characterized by restlessness, anxiety, insomnia, and delirium. The skin is dry and pale and often has a subicteric tint which approaches a muddy hue with subcyanosis about the nasolabial folds and the orbits. As a rule the temperature is high. The central nervous system, especially the brain, is in a state of hyperactivity. The heart is dilated. The heart tones are rapid, weak, and muffled. Other characteristics of the heart action are a reduplicated second tone, galloping rhythm, and diffuse fibrillation. The radial pulse is thready and rapid, varying between 130 and 150. Cyanosis of the finger tips is common. Respiration is rapid. The physical examination reveals the signs of hypostasis. The tongue is dry and coated. Vomiting often occurs and diarrhœa is a constant symptom. The liver and spleen are slightly enlarged. The urine is diminished in amount and contains albumin and biliary pigment.

The article gives complete autopsy reports. The local lesions of the condition consist of œdematous diffuse infiltration of the subcutaneous, subfascial, and loose intermuscular tissues associated with the presence of a brownish-gray fluid exudate and fœtid gas. Even at a distance from the local lesion the muscles look as if they had been cooked or partially digested. The heart is pale, flaccid, and dilated, especially the auricles. Microscopically there is a separation of the muscle fibers, a segmentation myocarditis with regressive changes in the endocardium and pericardium. The lungs present hypostatic congestion with foci of bronchopneumonia. Histologically, hyperæmia and interalveolar hæmorrhage are found. The thyroid gland is negative. The kidneys, stomach, and bowels are hyperæmic. The liver is enlarged and hyperæmic and on microscopic section presents a diffuse fatty degeneration with multiple foci of inflammatory infiltration. The changes in the spleen are characterized by vasodilation and hyperplasia of the malpighian corpuscles. The adrenals are intensely hyperæmic and often hæmorrhagic. The retroperitoneal nodes are hyperplastic. I. F. Volini.

EXPERIMENTAL SURGERY AND SURGICAL ANATOMY

Reid, M. R.: The Effect of Arteriovenous Fistula upon the Heart and Blood Vessels; An Experimental and Clinical Study. *Bull. Johns Hopkins Hosp.*, 1920, xxxi, 43.

Since the fall of 1914 the author has been making some experimental and clinical observations upon the blood vessels and heart with William S. Halsted. The work was begun by studying the effect of partially occluding aluminum bands upon the larger arteries of dogs and was stimulated by clinical observations upon subclavian ribs which, when they partially occluded the subclavian artery, sometimes gave rise to the formation of an aneurism just distal to the rib. Thus begun, the author's work has led into various other lines. One of these was the experimental study of the effect of arteriovenous fistula on the vascular system.

Halsted was familiar with the fact that an arteriovenous fistula materially altered the size of the artery proximal and distal to the point of fistula, and had seen clinical cases in which the heart was markedly dilated and hypertrophied. On the assumption that the same cause might explain the clinical observation that an artery dilates distally to a partial occlusion of its lumen and proximally to an arteriovenous fistula, Reid produced fistulæ between the arteries and veins of dogs.

At first the fistulæ were made between the femoral artery and vein, but these usually did not remain patent for longer than a few months. When the internal carotid artery and jugular vein were used there was no difficulty in keeping the fistula permanently patent

Reid reports the results of these experiments on dogs and gives also the histories of 14 cases of arteriovenous fistula admitted to the wards of the Johns Hopkins Hospital.

The author's experimental and clinical study convinced him that grave cardiac disturbances may result from the presence of an arteriovenous

fistula. Cardiac hypertrophy and dilatation due to this cause are scarcely mentioned in the medical literature. In 3 of the clinical cases the heart was markedly enlarged, while in 2 cases of congenital arteriovenous fistula in the neck there was no apparent abnormality of the heart, although in 1 case there was a definite proximal dilatation of the artery.

From his experiments and study Reid concludes as follows:

An arteriovenous fistula of long duration usually caused dilatation of the artery proximal to the fistula. This dilatation sometimes extended as far as the heart.

Marked cardiac disturbances sometimes resulted from an acquired arteriovenous fistula of long standing. These disturbances were hypertrophy and dilatation with eventual cardiac decompensation.

The wall of the vein involved in an arteriovenous fistula became hypertrophied. Although the vein on the proximal side of the fistula did not increase markedly in size, its wall showed a greater increase of elastic tissue than the wall of the vein distal to the fistula.

The venous blood pressure was increased in the part of the body distal to an arteriovenous fistula. When the fistula was cured the pressure returned to normal. G. E. Beilby.

Smith, T.: Mycosis of the Bovine Fœtal Membranes Due to a Mould of the Genus Mucor. *J. Exper. M.*, 1920, xxxi, 115.

An accurate knowledge of the number and variety of living organisms which may invade the uterochorionic space during pregnancy and cause localized or general disease of the chorion can be gained only by a cumulative study of the pregnant bovine uterus before the discharge of the fœtus. After expulsion, adhesion of the placenta, the loss of the pathologic fluids held between the uterine wall and the chorion, the soiling of the placenta by the bedding, or its destruction by the animal make a satisfactory investigation impossible.

The relation of the vibrio fœtus to abortion may be considered as established. Occasionally bacillus pyogenes is also present in the organs of the discharged fœtus in such numbers that tentatively it may be regarded as a primary agent.

A mucor closely resembling Lichtheim's mucor rhizopodiformis was isolated from the diseased chorion of a cow and from the lungs and digestive tract of the fœtus. No other micro-organisms were detected. The mucor was demonstrated in teased preparations from the fresh cotyledons as well as in sections of suitably hardened tissues. The intravenous injection of the spores into rabbits was followed by focal lesions. The condition of the amniotic fluid and the contents of the rumen of the fœtus seemed to the author to justify the inference that premature expulsion was impending.

G. E. Beilby.

ROENTGENOLOGY AND RADIUM THERAPY

Holland, C. T.: An Address on War Lessons for Radiology. *British M. J.*, 1920, i, 353.

In the first part of this article the author deals with the status of radiology in the British Army from the beginning of the war in 1914 and the tardy recognition by the army authorities of the claims of radiology and X-ray workers. Recognition was finally evidenced by the appointment in 1918 of expert radiologists as advisers to the various army commands, and by the grading of the R. A. M. C. officers with regard to their X-ray knowledge.

In discussing the effects of the war on X-ray apparatus and the invention of new instruments it is stated that the only outstanding advance was the American standard mobile transformer unit with its radiator type of Coolidge tube. With this outfit all the work required at casualty clearing stations, advance hospitals, and most base hospitals could be done.

The author cites the following classes of cases in which he believes the science and art of radiography were advanced: (1) diaphragmatic hernia, frequently seen following wounds of the diaphragm; (2) gas gangrene; (3) tropical abscess of the liver and (4) keloid.

No real advance was made in localization work, although valuable experience was gained both in this and in examinations to determine the presence of bone injuries.

Attention is called to the fact that during the war the importance and scope of radiology were impressed not only upon physicians and surgeons but also upon the general public, both by the enormous number of wounded who were examined and treated by the X-ray and the many persons who became interested and assisted in this science in England and other countries. The result has been a great increase in X-ray work.

The author adds a word of warning to lay assistants who, having a smattering of X-ray knowledge, set themselves up as radiographers, and also to medical men who have little general knowledge of radiography and its interpretation with regard to the kidneys, thorax, abdomen and its contents, bone disease, and treatment. He strongly urges medical men who contemplate doing X-ray work to prepare themselves with a course in radiology.

In conclusion, the importance of efficient X-ray work for success in war surgery is re-emphasized. This work should be recognized by the army as calling for expert training. The teaching of radiology to officers, the training of nurses and orderlies as assistants, and the standardization of X-ray equipment should be organized and kept up to date by a permanent staff at the War Office. Postgraduate work in this subject should be offered and those who wish to become experts should be required to obtain special training leading to a diploma. Undergraduates also should be instructed and examined in X-ray work. J. E. McCorvie.

Vilvandré, G. E.: Observations on the X-Ray Treatment of Neoplasms. *Brit. M. J.*, 1920, i, 215.

Vilvandré states that when we are able to diagnose malignant disease early in all cases, X-ray therapy will be limited to cases in which mechanical or physiological conditions prevent operation. Until then we are obliged to use it for many tumors the size and position of which forbid the use of the knife. The author has had the best results in sarcomata, especially in the slow-growing varieties. Several patients who on clinical examination were believed to have a sarcoma and who were given X-ray therapy alone were apparently well five years after the diagnosis was made.

In carcinomata (except in rodent ulcer) the results are not so striking and secondary glandular involvement is more apt to occur. Vilvandré urges the routine radiation of scars after the removal of squamous-cell carcinoma of the lip and other such tumors. He believes the reaction of a tumor to the ray depends not on its vascularity but on the amount of fibrous tissue in the stroma, the greater the amount of fibrous tissue the slower the growth and the better the response to treatment. From the standpoint of therapeusis the X-rays may be divided into two classes, namely, those that stimulate growth and those that inhibit it. As an illustration of the effect of the former is cited the development of cancer upon a lupus vulgaris after frequently repeated small doses of the rays. Attention is called to the similarity in action of arsenic and X-rays. Both produce erythema, pigmentation, hyperkeratosis, and neuritis, and after prolonged treatment both may produce carcinoma. The fact that the prolonged administration of arsenic leads to nerve degeneration and hyperkeratosis upon which epitheliomata may develop, suggests that possibly some forms of carcinoma may be due to lack of nerve control of the cells following primary nerve degeneration.

In the treatment of tumors of the thorax accurate localization is essential and markings should be made on the chest wall. Cases of neoplasms of the lung, while not curable, may be much relieved of pain, cyanosis, and cough.

The essentials in the treatment of neoplasms are: (1) careful protection of the skin; (2) prolonged treatment; (3) accurate dosage and localization; and (4) heavier doses of harder rays through thicker filters than have been used heretofore.

J. H. P. Gauss

Muehlmann, E.: The Treatment of Tuberculosis with the X-Rays (Die Behandlung der Tuberkulose mit Roentgenstrahlen). *Therap. Halbmonatsschr.*, 1920, xxxiv, 35.

The author reports the indications for the X-ray treatment of tuberculosis, the technique, and the results. The action of the rays depends upon the stimulation of connective-tissue growth and therefore the forms of tuberculosis with abundant granulation tissue are benefited most, whereas old caseated foci are not benefited at all. The X-ray does not act upon the tubercle bacilli but by removing their nourishment causes them to lie dormant in the connective-tissue wall.

The technique of the roentgen-ray treatment of tuberculosis is the same as for other conditions. Weak and feverish patients must first be strengthened and freed from fever. Amyloid and contracted kidney are contra-indications. In the treatment of tuberculosis of the glands of the neck, the larynx must be protected and if possible also the salivary glands. Tuberculosis of the lymph glands, tendon sheaths, bones, hands, feet, ribs, sternum, and scapula may be entirely cured with the X-ray, especially if the foci are still closed. If caseated foci do not improve they should be attacked surgically. Postoperative raying decreases the danger of recurrence. Fistulæ should be cleaned out and all caseated material removed. Caseations should be punctured, injected with iodoform, and rayed.

Tuberculosis cutis verrucosa may be entirely cured by the X-ray. Lupus vulgaris should be treated with the Finsen rays immediately. In cases of tuberculosis of the larger bones and joints the use of the X-ray alone rarely results in a cure. It seems to hasten recovery, however, and with improved technique the results will probably be better.

The X-ray has not been used in the treatment of tuberculosis of the uropoietic system, the genital system, or the peritoneum. In pulmonary tuberculosis only the disseminated and indurated forms are adapted to X-ray treatment as the necessary amount of granulation tissue is present in these alone.

Tromp (Z).

Lobenhoffer, W.: The X-Ray Treatment of Cancer (Beiträge zur Röntgentherapie des Krebses). *Munch. med. Wchnschr.*, 1920, lxvii, 119.

The more extensive the employment of the X-ray in the treatment of cancer the more strictly must the indications be limited. The treatment of cancer with the X-ray has recently been attacked by many so-called X-ray therapeutists. According to their statistics the X-ray has not improved the ultimate results and has not come up to expectations.

Cancer of the uterus is more favorable for X-ray treatment than most cancers. This must be due to a peculiarity of its cells as almost all other surgical cancers are more readily reached with the X-rays. Cancers of the digestive tract—those of the pharynx, gums, and tongue—react least of all. In skin cancers the author has observed a preliminary retrogression to minute rests and frequently a sudden and rapid uncheckable growth. Slightly more favorable are the cases of cancer of the œsophagus.

To ray a breast cancer that is still considered operable is not advisable in view of the poor results. Early removal of the breast with thorough cleaning out of the axillary and other nearby glands should

precede X-ray treatment. Definite conclusions regarding the treatment of recurrences with the X-ray alone are still not possible. In the treatment of inoperable cases the X-ray is a valuable aid but cannot yet be considered a cure for cancer.

CARL. (Z)

Martin, C. L.: Roentgen-Ray Study of the Great Vessels. *J. Am. M. Ass.*, 1920, lxxiv, 723.

The accurate percussion of supracardiac dullness is often extremely difficult, especially in the presence of obesity. Even when an increase of the width is determined, it is no easy matter to ascertain the cause. The roentgen examination is a valuable aid in establishing the diagnosis.

The author describes the findings in a series of cases of involvement of the great vessels and illustrates his article with a number of tracings from "7-foot" plates made by the teleroentgenographic method. After briefly analyzing the component parts of the silhouette cast by the heart and great vessels, Martin discusses the various causes of an increase in the width of the shadow of the great vessels.

Lesions of the mitral valve lead to enlargement of the left auricle and pulmonary artery so that these may overlie the left border of the descending aorta and extend upward to the crest of the arch. In such cases, the supracardiac dullness is definitely increased to the left as is also the shadow seen in the roentgenogram.

Arteriosclerosis of the aorta frequently leads to a tortuosity manifested as an increased prominence of that portion of the aorta to the left of the spine just before it becomes the descending aorta. Syphilis of the aorta frequently manifests itself by a bulging out of the ascending aorta immediately above the aortic valves. Hypertension usually leads to a diffuse dilatation of the aorta. A high diaphragm in patients with large amounts of abdominal fat or intra-abdominal pathology may be responsible for an unusually wide aortic arch. Enlargement of the pulmonary artery from congenital anomalies or obstruction may cause a definite increase in the shadow. Frequently a combination of conditions produces findings which are extremely difficult to analyze. In some cases the appearance of the heart shadow gives information relative to the nature of the condition causing the change in the great vessels.

The article is summarized as follows:

In recent years there has been an ever-increasing tendency to apply the roentgenogram to the diagnosis of syphilitic aortitis. That the X-ray picture is a very valuable adjunct to the clinical findings there is no doubt, but the importance of a conservative interpretation of a widened shadow of the great vessels should be emphasized.

Arteriosclerosis, hypertension, chronic endocarditis, a high diaphragm, or a dilated pulmonary artery may give a similar picture, and it is perhaps wiser for the roentgenologist to suggest the diagnosis of aortitis only in cases showing a localized prominence at the base of the ascending aorta.

It is the exception rather than the rule to find a single cause underlying increased supracardiac dullness. The occurrence of syphilitic aortitis, arteriosclerosis, hypertension, and a high diaphragm in the same patient is not very uncommon.

Detailed histories of a number of illustrative cases are cited.

ADOLPH HARTUNG.

Pancoast, H. K.: Roentgen-Ray Studies of the Functional Alterations of the Diaphragm. *N. York M. J.*, 1920, cxi, 353.

The diaphragm may be regarded as an important organ of the chest. Its function may be altered or temporarily or permanently suppressed by disease of the muscle itself or of neighboring structures. These variations may be readily detected by the roentgenoscope. Williams was one of the first to make an extensive study of the diaphragm with the roentgen ray and to note the changes associated with various pathologic conditions.

Paralysis of the phrenic nerve from any cause produces relaxation of the diaphragm, making it appear elevated and motionless. In disease of the lung causing inelasticity a decided restriction of diaphragmatic movement will be found. This is especially noticeable if the lower lobe of the lung is involved and there is much fibrosis. It occurs in tuberculosis, pneumoconiosis, abscess, and gumma. Inflammatory conditions also cause some diaphragmatic restriction, the degree depending upon the nearness of the lesion to the diaphragm as well as the extent of the process. Neoplasms of the lungs produce diaphragm restriction which depends upon their location, size, inelasticity, and pressure on the air passages.

Disease of the pleura is probably the most frequent cause of serious interferences with diaphragmatic movement. Such conditions may act by pressure, adhesions, reflexly because of pain, or by causing disease of the diaphragm muscle. Localized collections of fluid at the bases tend to fix the muscle; large general effusions cause it to become depressed and stationary. A thickened pleura and adhesions frequently produce permanent restrictions. Obstruction in the air passages from pressure or foreign bodies causes a limitation of movement in direct proportion to the amount of respiratory obstruction. The influence of myositis cannot be definitely determined as other factors usually enter into the changes observed. Reflex disturbances, principally pain, may manifest themselves by diaphragmatic restrictions. This has been noted in acute pleurisy and acute peritonitis. Diaphragmatic hernia and eventration may be readily diagnosed by the roentgen examination. Conditions in the abdomen may cause changes in the diaphragm which lead to their detection. Thus subphrenic abscesses cause more or less diaphragmatic elevation, flattening, and restriction of movement. Hepatic abscesses pointing under the diaphragm, nodular

growths in the liver, and ascites with large amounts of fluid may show diaphragm changes on roentgen examination which will aid in their discovery.

ADOLPH HARTUNG.

McClure, C. W., and Reynolds, L.: The Interpretation of Roentgen-Ray Findings in the Diagnosis of Peptic Ulcer: Some Difficulties. *J. Am. M. Ass.*, 1920, lxxiv, 711.

Temporary muscle spasm occasionally produces a distortion in the outline of the duodenum or stomach similar to that caused by ulcer and a persistent duodenal deformity resembling that of ulcer may be the result of some other condition such as congenital or acquired adhesions. Another difficulty in the diagnosis is the fact that the roentgenographic findings in true cases of peptic ulcer may be very atypical. Detailed reports are given to illustrate the types of cases described.

The authors' conclusions are summarized as follows:

1. Cases occur in which the presence of an ulcer is either not diagnosed at all or its presence or absence cannot be definitely determined except by exploratory operation.

2. It is necessary to interpret roentgen-ray findings in relation to the data obtained by careful and thorough clinical study.

3. In certain cases roentgen-ray findings are more confusing than helpful in the diagnosis.

It is obviously necessary for the internist to become familiar with roentgen-ray findings even though he can scarcely hope to become as adept as the expert roentgenographer. The best results are obtained therefore by the proper cooperation of the clinician and roentgenographer. Such cooperation consists of: (1) the accurate description of the roentgen-ray findings, the portrayal of the most probable conditions represented by them, and the exclusion of artefacts, on the part of the roentgenographer, and (2) the correlation of the roentgen-ray findings with the symptoms, on the part of the clinician.

ADOLPH HARTUNG.

Alvarez, W. C.: The Radiographic Study of the Abdominal Organs after Inflation of the Peritoneal Cavity. *California State J. M.*, 1920, xviii, 42.

The author discusses briefly the advances made in roentgenography by the injection of oxygen and air into cavities and describes his own technique.

Lorey in 1912 was the first to inject air into the abdomen for radiographic purposes but it was not until 1918 that the method was generally accepted.

The technique used by Alvarez is described briefly as follows:

Morphine having been given as a preliminary, a spinal puncture needle is thrust through the left rectus muscle near the navel. First a small quantity of sterile salt solution and then about 2 liters of gas are injected. The needle is then withdrawn and the roentgenograms are made at once. The patient is kept in the prone position until the gas is absorbed as otherwise considerable pain is felt through the shoulders.

When this procedure is followed the gall-bladder and other abdominal organs stand out in the X-ray picture with remarkable clearness and even the ovaries and uterus may be demonstrated.

Instead of gas the author uses carbon dioxide which is absorbed more quickly than oxygen, being taken up in half an hour.

P. M. CHASE.

LEGAL MEDICINE

Hypothetical Questions, Expert Evidence, Etc. *Dameron vs. Ansbro* (*Calif.*) 178 *Pac.*, p. 874.

The defendant was struck by a train while driving his buggy over a railroad crossing and was seriously injured. He was taken to a hospital conducted by the plaintiff. Upon examination the injured man was found to be suffering from ten fractures in the arms and legs and various other injuries. Under Dameron's treatment all of the fractures healed except one in the leg in which the bones overlapped and it was necessary to re-break the leg. Ansbro became dissatisfied with Dameron's treatment and called in another doctor. Dameron then sued Ansbro for medical services rendered, room rent, board, and nurse hire. Ansbro then filed a suit against the doctor for malpractice, alleging negligence and want of skill. The lower court consolidated the two cases and permitted the action for malpractice to stand as a set-off against the physician's claim. A judgment was entered for Ansbro and Dameron appealed.

Dameron's first ground for appeal was that the lower court erred in overruling his objections to hypothetical questions which were put to a physician called by Ansbro as an expert witness. The facts in the case having been given the expert witness, he was asked how long he believed the patient's recuperation was delayed by the alleged negligence, and also whether or not in his opinion as a physician and surgeon the manner in which Dameron had treated the patient was good surgery. Dameron's chief objection to the question was that in stating the case to the expert witness, important facts such as the condition of the patient, the presence of the fracture, the results obtained, the date of injury, etc., were omitted. With regard to this question the upper court held that considerable latitude must be allowed in the choice of facts as the basis of any hypothetical question, and if the question is fair and understandable by the witness, it is not to be excluded because it does not comprehend all the important facts in the case. The court further held that there was nothing in the records of this case to show that the recital of the facts alleged to have been omitted were necessary to enable the expert witness to form an intelligent opinion, and the lower court

did not err in overruling Dameron's objections to the question.

The second ground for Dameron's appeal was that the lower court erred in allowing the introduction of a statement made by another physician who was present at the time of the alleged negligent treatment. On this point the upper court held that a declaration made by a physician at the time of the treatment is admissible as part of the *res gestæ* and may be included in a hypothetical question, but that in this particular case the statement was made by a physician who was merely present and not engaged or interested in the treatment. His statements were therefore hearsay and not admissible and the lower court erred in allowing their introduction.

The third ground for appeal was that the lower court erred in permitting the action for malpractice to stand as a defense or set-off against the suit by Dameron for medical services, etc. On this point the upper court held that the action for malpractice should stand as a defense or set-off against the doctor's action for medical services, but could not stand as a defense against the claim for room rent, board, and nurse hire as Ansbro was liable for these regardless of whether the doctor used ordinary skill or was negligent.

The fourth ground for appeal was that the lower court erred in denying the expert witness permission to exhibit to the jury a human skeleton to aid them in understanding the facts. The upper court held that the exhibition of the skeleton to the jury was within the sound discretion of the lower court and it was not an abuse of that discretion if the court denied permission for the exhibition, feeling that the exhibition would not aid the jury.

Because of the errors complained of the judgment of the lower court was reversed.

J. A. CASTAGNINO.

Disease Resulting from Accident. *Metropolitan Casualty Insurance vs. Edwards (Tex.) 210 S. W.*, p. 856.

The defendant, while attempting to alight from an automobile, slipped and fell, striking the edge of the door of the automobile and sustaining an injury in the groin. Under the terms of his policy he was entitled to $25.00 per week for the period of his disability which covered several months as a hernia developed which necessitated an operation.

The insurance company refused to pay for the full period of the defendant's disability on the ground that hernia was not the direct result of the accident, that hernia could not result from such an accident, and that the insured must have been suffering from it prior to the accident. Edwards sued the company and obtained a judgment for $1,180.00 which was appealed by the company. The upper court held that the evidence of the case clearly showed that the insured was in perfect health prior to the accident, and that hernia could result from such an accident. The judgment of the lower court was therefore affirmed. J. A. CASTAGNINO.

Privilege as to Physician Employed Prior to Injury. *Hirschberg vs. Southern Pacific Company (Calif.), 183 Pac. R.*, p. 141.

The plaintiff went to the station of the defendant railroad to secure her baggage. The agent demanded an excess charge before he would deliver the baggage and in the altercation that ensued the agent seized the plaintiff by the arm and threw her down on the stone floor, permanently injuring her in the lower abdomen and causing a misplacement of the uterus. A judgment having been entered for the plaintiff in the sum of $3,500.00, an appeal was taken by the railroad company.

The only question raised in the appeal was whether or not the lower court erred in excluding the testimony of the physician. The physician had treated the plaintiff for misplaced uterus several years prior to the alleged assault and the railroad attempted to introduce his testimony to show that the assault did not cause the misplacement of the uterus. The plaintiff objected to the introduction of this testimony on the ground that it was a privileged communication between the plaintiff and the physician, but the railroad contended that the plaintiff waived her privilege by testifying herself and also by allowing her physician to testify in the action for assault.

In reviewing this phase of the case the Supreme Court held that the privilege is waived whenever the person entitled to the protection of the statute voluntarily makes public matters of which a disclosure without his consent is forbidden, and that therefore when a client or patient voluntarily introduces evidence of communication between himself and his physician or lawyer the physician or attorney may testify in respect thereto. It held also that if a patient offers the testimony of one of several physicians attending the case at the same time the privilege has been waived (Morris vs. Ry. 148 N. Y. 88), and then when different physicians have treated a patient at different times for the same injury the privilege is waived (Lawrence vs. Morning Journal 32 App. Div. 71). In the present case it was held that the treatment by the physician several years prior to the alleged assault was not for the same injury and therefore the testimony of the physician should have been excluded. The judgment of the lower court was affirmed. J. A. CASTAGNINO.

Release Not a Bar to Action for Roentgen-Ray Burns. *Wheat et al. vs. Carter (N. H.), 106 Atl. R.*, p. 602.

The question before the court was whether or not a release by an employee of any claim he might have against his employer for injuries sustained would bar the employee from action against a physician who was responsible for the injury.

Carter, while employed by Fellows and Company, injured his hand and employed Dr. Wheat to treat the wound. Dr. Wheat, in taking an X-ray picture of the hand, burned it severely. Carter released Fellows and Company from all liability and later sued Dr. Wheat for the injuries sustained in the

X-ray examination. Dr. Wheat contended that by releasing Fellows and Company, Carter was barred from his cause of action against him. The lower court entered a judgment against the doctor. This judgment was appealed.

The upper court held that the release of one of two parties jointly liable for the same injury releases the other from liability but in this case the evidence showed that Carter released Fellows and Company from liability due to the original injury to his hand, while his action against Dr. Wheat was for injuries sustained in the taking of the X-ray picture and hence did not bar his action. The judgment of the lower court was affirmed. J. A. CASTAGNINO.

Liability for Erysipelas—Touching Reputation.
Hanson vs. Thelan (*N. D.*), 173 *N. W. R.*, p. 457.

The history of the case was as follows:

The plaintiff, a minor, fractured his right leg between the knee and ankle and the defendant, a physician, was called to treat it. The physician applied ice packs for three days to reduce the swelling, then reduced the fracture and enclosed the leg in a plaster of Paris cast. About a week later he removed the cast and tightly bound the leg with a cloth. After three weeks he removed the cloth and placed a board under the leg, wrapped the leg in bandages, and attached a 10-lb. weight to the foot. The patient complained of sores on the foot. A few weeks later the board and bandages were removed, a shoe was laced on the foot, and a weight hung from it. When the shoe was removed subsequently the foot was found to be black and blue. The patient was then taken to the hospital by another physician who had been called in. Erysipelas had developed and the patient was confined to his bed for several weeks.

Later a suit was begun against the physician for damages. The physician contended that he used ordinary care and that no evidence introduced by the plaintiff showed that he was negligent. He contended also that his reputation as a physician was at stake and if the court found against him it would condemn him as incompetent and a careless practitioner. The lower court found in favor of the patient, and entered a judgment against the physician. This was appealed.

The upper court in reviewing the case held that a physician owes to his patient the duty to exercise reasonable and ordinary care, diligence, and skill such as is ordinarily possessed by physicians in the same general line of practice. It further held that the question raised in this case was whether or not erysipelas developed from the methods of treatment and whether the physician was negligent in his duty in that regard. The evidence in this case clearly showed that the erysipelas was a result of the methods used by the physician in treating the fracture and that the physician was negligent. As to the reputation of the physician, the court held that as everyone occasionally makes mistakes a judgment against him would not reflect on his reputation. The judgment of the lower court was affirmed. J. A. CASTAGNINO.

GYNECOLOGY

UTERUS

Frederick, E. V.: The Treatment of Obstructive Dysmenorrhœa. *Canadian M. Ass. J.*, 1920, x, 243.

The advantages of a mechanical stem after a dilatation for obstructive dysmenorrhœa are: (1) that after vigorous and prolonged dilatation the orifice is still small; (2) that contraction soon takes place unless pregnancy soon follows; (3) that prolonged dilatation of fibrous tissue causes it to become more permanently stretched; and (4) that pain is usually relieved as long as a foreign body is retained in the cervix.

The theoretical objections to a solid stem are: (1) that it may interfere with drainage from the cervical canal; (2) that its small size does not give sufficient dilatation; and (3) that it may cause perforation of the rectovaginal wall by pressure necrosis.

To overcome the objections and to retain the beneficial effects, a stem in the form of a thick hollow glass tube was devised 2 in. long, ½ in. in diameter. The upper end of this tube is smoothly rounded in the flame and the lower end attached to a rounded, flat vulcanite boss. In the side of the vulcanite boss two holes are drilled for the passage of a needle and suture. The advantages of the instrument are: (1) full dilatation; (2) free exit for discharges; (3) provision for silk suturing so that it may be retained as long as desired; and (4) protection against perforation of the vaginal wall. This stem has been found satisfactory in selected cases of obstructive dysmenorrhœa.

W. F. Hewitt.

Morand, P.: Three Cases of Cancer Developing Rapidly in Uterine Fibromata during Radiotherapy (Trois observations de cancers à evolution extremement rapide greffés sur des fibromes utérins au cours de leurs traitement par la radiothérapie). *Bull. et mêm. Soc. de chir. de Par.*, 1919, xlv, 1553.

The author's report is based upon merely the clinical evidences of malignancy. The patients were 54, 47, and 51 years of age, respectively, and the first manifestation of the condition in every case was a very severe hæmorrhage occurring suddenly after the cessation of menstruation. In the first case death occurred two and one-half months after the hæmorrhage, and in the third, thirty-three days later. In the second case a laparotomy was performed nineteen days afterward and even at that time only a thin shell of the fibroma remained and the malignant tumor had attained a large size.

Delbet, who submitted Morand's report before the Société de Chirurgie, discussed in detail the possibility of cancer arising from the use of the X-rays. While in strong dosage the roentgen ray kills cancer cells, in weak dosage it stimulates them. In a recent report, however, Beclère stated that after treatment with the X-ray he found a surgical operation necessary in only 4 out of 400 cases of fibroma and did not observe a single case of malignant change.

Whether the treatment of fibromata in women under 40 years of age should be surgical or roentgenological is still open to discussion. Sphacelous and infected fibromata and those complicated by salpingitis, however, demand surgery.

In the therapeutics of fibroma the limitations of radiotherapy and its indications concern every surgeon and therefore every surgeon should put his experiences on record in order that the methods indicated for the various types of fibroma may be clearly defined. Delbet recently operated upon two cases of fibroma in which roentgenotherapy had failed completely. In these instances he noted unusual adhesions about the growth and retraction of the parietal peritoneum. W. A. Brennan.

Evans, N.: Malignant Myomata and Related Tumors of the Uterus; Report of 72 Cases Occurring in a Series of 4 000 Operations for Uterine Fibromyomata. *Surg., Gynec. & Obst.*, 1920, xxx, 225.

The cases reported upon were studied in an endeavor to obtain microscopic criteria of malignancy by correlating the histologic findings and the clinical histories.

Kelly and Cullen hold that malignant myomata frequently originate within the structure of fibroids. The author concludes from his observations that this mode of origin is not common and that the tumor arises from the uterine musculature, the structure of which either remains unchanged or undergoes a gradual diffuse transformation.

Myomata in the early stages of malignancy are difficult to distinguish clinically, and sometimes even at operation, from benign fibromyomata. Kelly and Cullen state that inequality and increase in the size of the tumor cells is evidence of malignant change. Other authorities consider the presence of large irregular nuclei and giant cells as indications of the extent of the malignancy. Mallory holds that mitotic figures in myomata signify that the growth is capable of infiltrating and is therefore malignant. Proper and Simpson believe that the absence of mitotic figures indicates that the tumor is benign.

In reviewing his cases the author shows the definite relationship between the number of mitotic figures and the clinical outcome of the disease.

On the basis of the number of mitotic figures present, the tumors studied were divided into three

clearly distinct groups. The first group was composed of 13 tumors showing between 2,200 and 12,000 mitotic figures per cubic millimeter. In the second group were 10 specimens with mitotic figures ranging from 200 to 500 per cubic millimeter. In the remaining group mitotic figures were rarely found.

Group 2 is in striking contrast to Group 1 as no tumors were found in which the number of mitotic figures fell between 500 and 2,200. No recurrences have been noted in this group or in Group 3. Eleven of the 13 patients in Group 1 had recurrences from one to eighteen months after operation. The ages of these patients averaged 50 years, while those of all the others averaged 40½ years.

The author mentions the frequent occurrence of large atypical mitotic figures which he regards as a sign of high grade malignancy.

The tumors in Group 2 were probably in a transitional stage, on the border line between the definitely malignant tumors and the remaining cellular tumors. The growths in Group 3 were potentially malignant.

True tumor giant cells are to be differentiated from foreign body giant cells found in tumors, in the lesions of infectious granulomata, and in association with foreign bodies in the tissue.

Tumor giant cells, which in most cases are indicative of high grades of malignancy, are large, irregularly shaped, lightly staining, indistinct bodies with unequally sized, deeply staining nuclei usually arranged in a ring at the periphery of the cell. Foreign body giant cells are easily distinguished by their compact, deeply stained cytoplasm and their centrally located, small, round nuclei.

Recent experimental work has shown that the process of mitosis or indirect cellular division is related to the invasive powers of malignant tumors. In myomata of low malignancy in which no mitotic figures were seen there was evidence that the tumor growth was carried on by direct cell division.

In addition to mitotic figures, the author gives several other important microscopic criteria of malignancy, namely: large cells with a marked inequality in size; a relative decrease in the fibrous stroma; blood vessels without demonstrable walls; and a relative increase in the size of the nucleus as compared with the mass of cytoplasm of the cell body.

According to statistics, the relative incidence of malignant myomata to uterine fibroids varies from 0.4 to 7 per cent. The author holds that this wide variation is due partly to the lack of uniform standards for grading malignancy.

The cut surface of malignant myomata is smooth and grayish yellow. The tissue is softer and more friable than the fibrous structure of the ordinary fibroid.

In tumors of marked malignancy there is infiltration of neighboring tissues, but the less malignant growths may be as clearly demarcated from the surrounding myometrium as the ordinary fibroid.

Malignant myomata are often indistinguishable clinically from ordinary fibromyomata. A rapidly growing tumor in a woman beyond the menopause is suggestive of malignancy.

The most satisfactory treatment of fibroids of any appreciable size is surgical removal. In the 72 cases reported there were no operative deaths.

A. J. Scholl, Jr.

ADNEXAL AND PERI-UTERINE CONDITIONS

Ezquierdo, A.: Salpingitis and Neoplasms in Prolapse of the Uterus (La salpingitis y las neoplasias en el prolapso del utero). *Arch. de ginec., obst. y peliat.*, 1919, xxxii, 236.

Prolapse of the uterus should be regarded as a vaginal hernia behind which lie the adnexa and intestines in a peritoneal pouch. The base of this pouch is formed partly by the uterus and its ligaments.

When uterine prolapse is complicated by inflammatory processes or new growths its treatment becomes much more difficult because of the loss of tone in the ligaments and fascia of the pelvic floor. In many of the author's cases it was impossible to tell whether the salpingitis has been a contributory cause of the prolapse or had developed subsequently. However, because of their tendency to cause fixation by means of adhesions, inflammatory processes are regarded as unimportant in the etiology of uterine prolapse. An inflammatory mass may displace the uterus in any of the usual malpositions but its displacement downward in such cases is never as great as in cases of prolapse.

The beginning of prolapse is usually a retroversion which later may develop into a retroflexion. Such a position is unfavorable for the exit of the natural uterine secretions and of the transudates which result when the uterine circulation becomes stagnant. A chronic endometritis with more or less hæmorrhage and leucorrhœa may develop, but is not of great importance until it extends into the tubes and gives rise to salpingitis. Pelvic adhesions and tubal retention with foci of sterile pus may develop, and later, when malposition or prolapse is brought about by other causes, an acute exacerbation of the dormant salpingitis occurs.

At this stage the inflammation is more or less limited. It cannot extend upward and the uterus is somewhat immobile. Usually, however, the process will extend backward because of the greater space in the concavity of the sacrum and coccyx. The anterior wall of the rectum becomes involved and often is dragged down to form a pouch. Digital examination of the rectum is accordingly very important in order to identify this pouch and its relation to the adnexal tumor.

The diagnosis of the condition described is based upon the previous history, the evolution of the process, pelvic pain, evidence of vesical compression, and the findings of rectal and vaginal palpation. Fever is of importance in differentiating an inflammatory process from a uterine tumor or an intraligamentary cyst. Usually the patient suffers first from prolapse, the salpingitis remaining dormant.

When, after being freely movable, the uterus becomes somewhat fixed and there are strong pelvic pains, the development of a salpingitis or an acute exacerbation of a chronic salpingitis should be kept in mind.

Urinary incontinence often results from the compression. When the bladder is also prolapsed there may be incontinence with retention. Meteorism may be produced by compression upon the rectum and in some cases there is intestinal obstruction.

Vaginal hysterectomy is not advised. A hysterectomy performed upon inflamed, congested, and friable tissues usually results in profuse hæmorrhage the source of which it is often impossible to locate. Moreover, because of the changed relations of the pelvic viscera it is easy to perforate the bladder and rectum or to incise the uterus. Complete extirpation of all inflamed tissue by the vaginal route cannot be effected and dressings will not protect the wound from the urine and fæces. Hernia of the intestines has also been known to follow hysterectomy.

When there is suppuration the author first performs a posterior colpotomy and waits for improved conditions before attempting further operative procedures. This is an easy operation as the abscess is usually within reach. Drains are inserted and in some cases the cavity is irrigated. Instead of packing the vagina the drains are left in the wound and this results in a more efficient evacuation of the pus. When the suppuration has been reduced sufficiently a laparotomy is performed for the removal of the adnexa and the fixation of the uterus.

In some cases of carcinoma and sarcoma of the cervix and multiple fibroids, total hysterectomy is performed. The vaginal extremity is then sutured, a central aperture being left for drainage. The broad ligaments are then sewed to the angles of the vaginal stump and the uterovesical flap of the peritoneum is drawn over the whole and stitched to the back of the vagina. Protective drainage is thus secured and the vagina is suspended by the broad ligaments in order to prevent a later prolapse.

When suppuration is present it is impossible to suture efficiently and therefore a hysterectomy cannot be performed. In such cases infected adnexa and other tissues are removed as completely as possible and a hysteropexy is done. A triangular flap of peritoneum with its base upward is removed from the anterior wall of the uterus. To the wound thus formed the parietal peritoneum of the anterior abdominal wall is sutured about a centimeter from the margin of the abdominal incision. The triangular flap is also sutured to the abdominal wall and in this way adequate fixation is secured. Stab-wounds of the anterior abdominal wall near the iliac spines and the insertion of drains as far as the pouch of Douglas are necessary when the suppuration is bilateral and extensive. Colpoperineorrhaphy may be performed at this time if indicated.

The great advantages of abdominal intervention are that the adnexal pathology may be accurately explored, all diseased tissues removed, the suspensory ligaments re-enforced, and additional uterine support obtained. W. R. MEEKER.

Becerro de Bengoa, R.: The Importance of Certain Data in the Diagnosis of Ovarian Cysts (Importancia de algunos datos para el diagnostico de los quistes ovaricos). *Arch. de ginec., obst. y pediat.*, 1919, xxxii, 272.

Torsion of the pedicle is the most important complication of an ovarian cyst and of fairly frequent occurrence. Often the manifestations of torsion are somewhat obscure and mistaken for intestinal, nephritic, or hepatic colic or some condition of the stomach or appendix. Torsion compresses the veins of the pedicle without interfering with the arterial circulation. This produces a rapid increase in the size of the tumor as a result of the venous congestion and the increased secretion from the tumor wall. The obstruction may cause a hæmorrhage into the lumen of cystic tumors and areas of infarction in solid tumors. The gray glistening surface of the cyst is thus changed to a dull brown or reddish color. The damaged surface may develop adhesions to the intestines and omentum.

The clinical picture of torsion varies according to the rapidity of the twisting and the number and tension of the rotations about the axis. When the torsion takes place slowly there may be only moderate pain without severe constitutional symptoms and the torsion may even become untwisted. When the torsion is acute the picture is that of an acute abdominal condition such as peritonitis. The abdomen is rigid, distended, and extremely sensitive. The intestines become paralyzed and the pulse is fast and thread-like. Because of tension upon the adhesions the pain may be referred to points more or less distant from the site of the pedicle. The symptoms of a cyst on the right side may thus be referable to the left side.

If the tumor does not become septic the attack may pass off but if the tumor is not removed the torsion may recur at some future time. The tumor may also become densely adherent to the walls of the intestines. If the adhesions are attached chiefly to the omentum a fresh blood supply may be established.

Moderate-sized cysts are easily distinguished by their smooth round surface, cystic consistency, and independent movement. Tense cysts may be confused with pedunculated fibromyomata. Intraligamentary cysts may be mistaken for sactosalpinx, œdematous myomata, or the pelvic hæmatocele of an ectopic pregnancy. Large ovarian cysts are usually diagnosed more easily. The lower end may be palpated with the finger in the vagina and a transmitted wave of fluctuation obtained between the two examining hands. The normal uterus will usually be found to be displaced to one side or the other. When the patient lies on her back the cyst will be discovered next to the anterior abdominal wall and the intestines are in the flanks. The

anterior abdominal wall is thus dull to percussion and the flanks are tympanitic. In ascites the reverse is true.

Renal tumors usually extend higher up in the hypochondrium than ovarian tumors and can rarely be palpated with the finger in the vagina. Tumors of the kidney large enough to be confused with ovarian tumors cause a fullness in the triangular space made by the costovertebral angle when the patient is in the sitting position. W. R. MEEKER.

EXTERNAL GENITALIA

Bland, P. B.: Gonorrhœal Infection in Childhood. *N. York M. J.*, 1920, cxi, 489.

Gonorrhœa is one of the most troublesome and serious infections of early life. It is more frequent in the female than the male but rarely involves the pelvic organs. It is very highly contagious and very difficult to cure. In little girls it assumes the form of vulvovaginitis and it is this that the author discusses.

Vulvovaginitis is extremely common. Numerous epidemics of the condition have occurred in institutions for children.

The method of infection is usually indirect and in children under 10 years of age, nearly always accidental. The clinical thermometer, undercloth-ing, bed linen, towels, and even the bath tub and bath water may transmit the disease. The belief that exposure of an infected person to a person who is uninfected will cure the disease is common among certain races and accounts for many of the cases of direct infection. Infection during parturition is extremely rare.

The systemic and local symptoms are usually mild. As a rule the vulva, vagina, and cervix are all involved. The common symptoms are local irritation and a profuse vaginal discharge.

The diagnosis is based on the history, physical examination, microscopic examination, and complement-fixation test. The discharge is first thin and watery, then thicker and sticky, and finally thin and watery again. There is marked inflammation of the vulva and urethral orifice but inflammation of the Bartholin glands is rare. As a rule the gonococcus is found easily in the acute and subacute stages but in cases of long duration its discovery becomes difficult. The complement-fixation test is of value when it is positive, but when it is negative it cannot be relied upon.

Some cases yield to treatment promptly, while others are very resistent and recur frequently, probably because of infection of the cervix or Bartholin's glands. In the latter type of case the prognosis is very unfavorable. Before the patient can be pronounced cured four negative smears over a period of a week and one or two negative serological examinations are necessary.

The author emphasizes the importance of preventive treatment. All vaginal discharges should be examined carefully with the microscope before a patient is admitted to a home or ward for children. The active treatment should be given very carefully at first and should not cause any pain; otherwise the patient will resist all further measures. The treatment should consist of thorough cleansing of the vulva and douching of the vagina with water and later with a weak dilution of Lugol's solution in warm water twice daily, followed once daily with 20 minims of a 25 per cent argyrol solution injected into the vagina with a medicine dropper. The author has not obtained favorable results with vaccines. In the early stages of the condition the child should be kept as quiet as possible.

S. A. CHALFANT.

De Lee, J. B.: Trichomonas Vaginalis Vaginitis. *Illinois M. J.*, 1920, xxxvii, 186.

The intestinal canal harbors infusoria, among them trichomonas. Since it is impossible to grow the trichomonas and make inoculation experiments it has not been absolutely proved to be the cause of the vaginitis considered, but its absence from the normal vagina, its great abundance in typical cases, the failure of the ordinary treatment of vaginitis, and the immediate success of treatment directed against it, make this assumption highly probable.

The patient complains of obstinate vaginal discharge, pruritus, sleeplessness, burning, and general weakness. The vulva and vagina are reddened and often rough. In some cases minute hæmorrhages are seen in the vaginal epithelium. Sometimes the cervix is affected. The discharge, which is profuse, excessive, mucopurulent, thin, bubbly, and acrid, has a disagreeable odor. Its irritating character is shown by the erosion of the skin. Especially in fat women there is an obstinate and foul-smelling intertrigo.

In the treatment the patient is put to bed for two days. On the morning of the first day the vagina and vulva are scrubbed thoroughly and vigorously with tincture of green soap and water and a rough cloth. The soap is then rinsed off with sterile distilled water. This process is repeated three times, after which a douche of a 1:1500 bichloride of mercury solution is given with friction, every fold and crevice being washed. This solution is then washed out with sterile distilled water. The next morning the vagina is again washed with green soap and sterile water, after which it is packed with cotton soaked with glycerine and sodium bicarbonate (4 oz. glycerine and 1 oz. soda). The folds and crevices of the vagina are filled with the cotton and the vulva smeared with the mixture. The next morning the tampon is removed and a douche of sterile water is given.

The following morning the secretion is examined under the microscope for trichomonades. Usually they have disappeared. Douches of 2 per cent soda and water solution are then given in the morning and evening. If the organism is still present the treatment described is repeated. In the author's cases this has never been necessary.

EDWARD L. CORNELL.

Martius, H.: Local Anæsthesia in Vaginal Operations (Die Lokalanaesthesie bei vaginalen Operationen). *Med. Klin.*, 1920, xvi, 5.

Sacral anæsthesia was used for numerous vaginal operations at the gynecological clinic at Bonn. However, as in 5 per cent of the cases requiring such operations it was impossible to reach the spinal canal and in many others the anæsthesia induced in this manner was not complete, the parasacral method of Braun was adopted. This parasacral method was used in 42 operations. Complete anæsthesia was obtained in 31 cases. In the others a few drops of ethyl chloride were necessary, especially when the uterus was brought forward or when intraperitoneal work was done. There were three cases of complete failure.

The solution used was ½ per cent novocaine with adrenalin in amounts up to 210 ccm. In one case an abscess developed between the sacrum and the rectum, and in another there was skin necrosis at the site of the injection. In a third case the use of 320 ccm. of the solution was followed by collapse.

BRUENING (Z).

MISCELLANEOUS

Solomons, B.: Sterility. *Surg., Gynec. & Obst.*, 1920, xxx, 173.

Forty-seven per cent of 436 women treated by the author for sterility were cured. This is an unusually good showing, particularly in view of the fact that an operation of greater or less magnitude was required in each case.

From his study of the subject the author draws the following conclusions:

1. Sterility is a condition which at the present crisis of the population demands the serious attention of the profession. It is incumbent on the proper authorities to endow hospitals sufficiently to allow them to carry out thorough investigations. Many women are denied admission to a hospital because of lack of funds.

2. Sterility is curable in a large number of cases if care is taken to select the appropriate treatment. When operation is necessary attention must be given to even minor details.

3. In nearly all cases requiring operation the abdomen should be opened.

4. The most common major abnormalities are backward displacement of the uterus and tubal inflammation.

5. The most common minor abnormalities are kinks of the tube and small cysts of the ovaries and broad ligament.

6. Dilatation of the cervix should be done in all cases requiring operation. Metal dilators should be used. The use of tents and pessaries which must remain in the uterus for some time should be avoided.

7. Even if sterility is not cured by operation the pathologic conditions present are corrected.

8. There is no mortality.

9. The male should be examined when necessary.

10. Acid cervical secretion alone is not a common sign of sterility.

11. The administration of glandular extracts, especially ovarian extract, is useful in selected cases.

12. The statement must be reiterated that in some cases conception is prevented by a physiological factor which still remains unexplained.

H. B. MATTHEWS.

Ahumada, J. C.: Gynecological Affections in Relation to Syphilis (Las affecciones gynecologicas en su relacion con la syphilis). *Rev. argent. de obst. y ginec.*, 1919, iii, 452.

Chief among the affections of the vulva, the vagina, and the uterine cervix is the primary lesion of syphilis. This may simulate almost any other form of ulceration. It may be chancroidal, pyogenic, or granulomatous. The best way to arrive at a diagnosis is to study the organisms present. As there is always the possibility of a mixed infection, however, syphilis should be borne in mind in the examination of every case of gynecological infection. The phagedenic ulcer of the tertiary period is the most common of all phagedenic ulcers. The author has found these lesions on the labia majora, the vaginal introitus, the anterior vaginal wall, and the vestibule.

Vulvar leucoplasia, which is usually associated with a kraurotic condition, appears to be a manifestation of syphilis and must be differentiated from true kraurosis vulvæ due to trophoneurosis or chronic pruritis of the vulva. Another condition of the vulva which may be due to syphilis is elephantiasis. This is closely related to chronic syphilitic induration of the vulva.

The vagina is the portion of the genital tract most rarely affected by syphilis. Tertiary lesions in a state of ulceration are sometimes found there but usually originate as gummata in the surrounding tissues. In some cases fistulæ are established and deformities result from cicatrization.

The uterine cervix probably comes fourth in order of importance as regards the development of chancre, the other portions being, in order, the labia majora, the fourchette, and the vestibule. Tertiary syphilis of the cervix is rare and gummata are exceptional. When the activity of a syphilitic lesion subsides a cervical sclerosis may result.

Menstrual irregularities due to syphilitic ovaritis of the second stage are quite frequent. It is thought that the spirochæta pallida has a direct action on the ovary and graafian follicles which may result in an ovulation comparable to an azoöspermia. The menstrual irregularities due to secondary syphilis are infrequency, irregularity, oligomenorrhœa, amenorrhœa, and occasionally metrorrhagia and menorrhagia.

Another form of syphilis of the ovary in the second stage is characterized by tumefaction associated with nocturnal and menstrual exacerbations of pain sufficiently severe to render the patient

bedfast. This form is often confused with adnexa inflammations of other etiology.

Little is known concerning late syphilitic lesions of the body of the uterus. Examinations of the curetted endometrium in cases of metrorrhagia which have responded to treatment for syphilis have failed to establish the presence of a syphilitic endometritis. It is possible that syphilis may produce a visceral sclerosis beginning in the smaller arteries as well as a simple arteriosclerosis. Isolated cases of uterine syphilis have been described but the proof has usually been incomplete, the diagnosis being based upon the response to treatment for syphilis rather than histopathologic study. No relationship between syphilis and fibromata has been found by the author. Occasional cases of gumma of the tubes and ovaries have been reported.

Gummatous infiltration of the pelvic connective tissue is rare and usually perivaginal in origin. The vaginal walls may become infiltrated and the intestines included in the cicatrices of old ulcerations. W. R. MEEKER.

Sicilia: The Treatment of Gonorrhœa in the Female (La cure de la blenorragia femenina). *Siglo méd.*, 1920, lxvi, 1079.

The treatment of gonorrhœa in the female presents marked difficulties. The complexity of the passages, the frequency with which, even from the beginning, numerous localities are involved—urethral, cervical, diverticular, and glandular—and the tendency of the condition to ascend, are all obstacles to treatment. Another factor of no little importance is menstruation which not only continues but lasts longer than usual in many cases of gonorrhœa of the uterus, especially in the first stages of the disease.

When the patient comes under observation at the beginning of the process the secretion visible at the meatus will usually be found to contain numerous gonococci and is thick and whitish or somewhat yellowish. The cervix uteri secretes a thick mucopurulent discharge which covers the cervix and settles in the vaginal vault. The urethral discharge also is copious.

The method of treatment which has given the best results in both acute and chronic cases and which can be adapted with slight variation to the various locations of the lesions and the varying bacterial flora is the following method which the author recommends also for its simplicity and effectiveness and the fact that it can be used by any physician:

First the vagina and the cervical canal are treated by lavage. The irrigation must be sufficiently forcible to remove all the mucus and pus. A solution of potassium permanganate varying in strength from 1:4000 to 1:2000 is used, to which is added progressively between 20 and 100 drops of a 5 per cent solution of silver nitrate. The silver nitrate is added toward the end of the first week, or better, when the acute subjective symptoms, such as pain and frequency, have subsided. In increasing the solution, the patient's tolerance and the aspect and quantity of the mucus and pus must be taken into consideration. After a pint or so has been used to wash off the thick discharge, the point of the cannula is applied to the cervical orifice (which is easily done in the cases of parous women), or brought as close to it as possible so that the hot antiseptic fluid may penetrate into the first portion of the uterus. In general, the lavage is continued until the mucosa assumes a brown tint showing that the permanganate has been well absorbed.

When the mucosa is fungous or ectropion and the thick discharge is not promptly modified the author makes an endocervical application of a 5 or 10 per cent solution of nitrate of silver. He washes off the excess with a little of the lavage solution, finishing by swabbing the cervix, and often the vagina also, with a 5 per cent potassium permanganate solution. In the early stages, when the gonococcus is the predominating organism or the only organism present, he sometimes injects a 5 per cent solution of argyrol or protargol deep into the cervix.

The treatment of the urethra is as follows:

1. The urethra is irrigated with potassium permanganate solution alone or combined with methylene blue or nitrate of silver, the dose being graduated according to the local condition. A cannula with a double flow and from 2 to 4 qt. of the solution are used.

2. An injection of about 10 ccm. of a 5 per cent solution of argyrol or protargol or a mixture of both with albargin is made and the patient told to refrain from urinating as long as possible. If after some days the discharge has not abated or if it has a suspicious character, a few drops of a 10 to 20 per cent solution of silver nitrate may be added to the strong solution of organic silver.

Sicilia has had positive cures with this method even in cases of gonorrhœa of eight or more months' duration in which there was persistent discharge with deformity of the uterus. In these cases the sticky discharge, stained with thionin, methyl green, or fuchsin, showed large numbers of irregular and elongated cells superimposed upon one another and containing one or more nuclei with heavily stained chromatin. In the detritus caused by the destruction of the stratified pavement epithelium of the cervix, small lines and rings of points like streptococci were seen. These were probably saprophytes or colon bacilli. M. M. MATTHIES.

Piccardo, T. J.: The Schauta-Wertheim Operation in the Treatment of Genital Prolapse. (La operación de Schauta-Wertheim en el tratamiento del prolapso genital). *Rev. argent. de obst. y ginec.*, 1919, iii, 405.

In the treatment of prolapse of the uterus Piccardo uses a modification of the Schauta-Wertheim operation which he believes is more simple and

more efficient than the original operation. Briefly, this procedure is as follows:

A single median longitudinal incision is made in the vesicovaginal wall and the two lateral flaps are dissected back for the formation of a subvesical cavity to receive the body of the uterus. A small incision is then made into the vesico-uterine peritoneal sac, the vesico-uterine ligaments being ligated, and this opening is enlarged with a clamp so that the body of the uterus may be passed through it. It is not necessary to repair this peritoneal opening as in the original operation.

If there are no perimetritic adhesions, the body of the uterus is now delivered through the peritoneal incision. The supravaginal portion of the cervix is seized with traction forceps, and other forceps are applied successively higher up along the anterior median line of the corpus. The uterus is delivered with a small amount of traction. The fundus is pulled down by a finger introduced into the peritoneal cavity only when adhesions make this necessary.

If the operation is performed during the reproductive period the patient is sterilized as the new position of the uterus is not compatible with gestation. The tubes are therefore ligated twice and severed.

The next step, subpubic fixation and suspension of the uterus, is a departure from the original Schauta-Wertheim technique according to which the uterus is sutured to the anterior vaginal walls. Piccardo maintains the uterus in the new subvesical position by means of two silk sutures each of which connects a lateral end of the subarcuate ligament of the pelvis with the uterine horn on the corresponding side. The greatest difficulty here is the passing of the suture under the subarcuate ligament. The ligament is located with the index finger of the left hand which is used also to protect the urethral canal. When the suture has been properly placed under the ligament the resistance is very firm and the tissues will not yield to traction on the suture material. When the two sutures are in place the uterus is fixed quite firmly in a position behind and below the pubic symphysis.

The vaginal incision is closed with interrupted catgut sutures. To strengthen the subvesical fixation and aid in effecting hæmostasis these sutures include also a portion of the body of the uterus. The original incision is thus completely closed, none of the corpus uteri being left exposed.

In cases of relaxed perineum, colpotomy with suture of the levatores ani by the usual method is also done. W. R. MEEKER.

OBSTETRICS

PREGNANCY AND ITS COMPLICATIONS

Titus, P., Hoffmann, G. L., and Givens, M. H.: The Rôle of Carbohydrates in the Treatment of Toxæmias of Early Pregnancy. *J. Am. M. Ass.*, 1920, lxxiv, 777.

The authors assumed that there is a definite relation between the milder and graver types of the toxæmias of early pregnancy just as there may be a relationship between these toxæmias and those of later pregnancy known as acute yellow atrophy of the liver, pre-eclamptic toxæmia, and eclampsia. Therefore it appeared reasonable to suppose that a study of the milder types of toxæmia might disclose important facts relative to the origin of the more serious toxæmias. As a means to this end cases of the early toxæmias of pregnancy of varying degrees of severity were treated upon the theory that the condition is due to a deficiency of carbohydrates in the diet.

The daily regimen for an ordinarily mild case of nausea and vomiting was as follows: a soda cracker breakfast before arising; a light breakfast at the regular time; unsalted soda crackers and milk in the middle of the morning; a light lunch without meat or pastry at lunch time, the dessert being cornstarch, rice pudding, or custard; afternoon tea with arrowroot biscuits or bread and butter sandwiches; a light dinner or supper similar to the luncheon with some sweets and possibly raisins or dates for dessert; a bowl of bread and milk at bed time; and crackers and water on the bedstand to be taken during the night.

This diet was found sufficient to relieve an average case of nausea and vomiting if attention was paid to elimination. A list of foods rich in carbohydrates is given but the authors point out that the entire elimination of proteins and fats is by no means essential.

Women whose vomiting is becoming progressively worse require more detailed care and observation. In such cases all food should be withheld for a period varying from twenty-four to thirty-six hours, and food residue, bile, and mucus should be removed from the stomach by gastric lavage two or three times daily. As in these cases there is a certain amount of reverse peristalsis, cathartics, such as magnesium sulphate, should be passed in through the tube to re-establish normal peristalsis. Enteroclysis of glucose and soda solution, the usual rest in bed, and sedatives such as chloral and bromides should be prescribed. After the initial period of rest, during which emesis usually subsides, the authors give from 1 to 1½ oz. of whey, peptonized milk, skimmed milk and vichy, or buttermilk alternately with 2 oz. of a 10 per cent glucose solution and 2 per cent sodium bicarbonate solution every two hours. If the patient's condition permits, 1 qt. of the 2 per cent soda solution is administered daily by mouth or rectum. Otherwise intravenous injections of plain glucose are given and repeated as indicated. No serious reactions have been observed in the authors' clinic from glucose solution given intravenously. For the injection of from 15 to 20 gm. of glucose in 250 ccm. of sterile water one-half hour is allowed. The appearance of glycosuria indicates that the amount of glucose should be reduced. Small amounts of water should be given frequently. Ordinarily by the third or fourth day cream soups, stewed fruits, cornstarch pudding, or ice cream may be allowed, but the glucose and soda by bowel and mouth should be continued. Crackers, cereals, milk-toast, custards, and sugar are next added to the diet.

The authors report 76 cases of toxæmia which they divide into three groups. Group 1 included 32 patients with irregular nausea and vomiting. Dietetic measures as outlined were sufficient in almost all of these cases although in a few the glucose and soda solutions were given at three-hour intervals. In 29 cases the improvement was immediate, while in 3 it was not noted until after a period varying from seven to fourteen days. All of the patients were relieved permanently.

Group 2 included 29 patients who were suffering from constant nausea and persistent vomiting which was constantly growing worse. Two had lost considerable weight and 1 was slightly jaundiced. Two had twin pregnancies and in both of these cases labor was premature. One showed the symptoms of toxæmia near the end of pregnancy. Prompt relief from nausea and vomiting was obtained in 23 cases; in 5, recovery was not so rapid; in 1 the nausea never completely ceased but the pregnancy continued to term.

In Group 3 there were 15 cases of the most serious type of toxæmia. Acetonuria was present in all and in the majority the urine contained albumin and casts. Many of the patients were jaundiced and all were emaciated and unable to retain food or water. These cases were seen in consultation and most of the attending physicians expected that therapeutic abortion would be necessary. Fourteen of the women recovered in from seven to fourteen days. An abortion was induced in only 1 case. This patient, who was three months' pregnant, deeply jaundiced, and emaciated, had been under treatment for five weeks in a hospital where there was religious objection to the induction of abortion. She had multiple neuritis and paræsthesia of the hands, arms, legs, and feet. The knee jerks were absent. A transfusion of blood was also

believ d necessary in this case and the patient was kept in the hospital for several weeks.

The article contains a preliminary report of chemical and experimental investigations relative to the impairment of liver function by glycogen depletion and an attempt to devise a test for liver efficiency and deficiency. The ability of the liver to store a definite amount of glucose given intravenously to normal pregnant women is shown by a time curve. A study of similar curves in cases of toxæmia led to the conclusion that the prognosis is good if the liver is able to store between 75 and 105 mg. of glucose per 100 ccm. of blood within thirty minutes, this ratio being approximately equivalent to that of a normal pregnant woman. If it is able to store only between 30 and 40 mg. the situation is grave.

The conclusions drawn are as follows:

Carbohydrate deficiency in pregnancy is due to: (1) a relative deficiency from unexpected demands for glycogen on the part of the fœtus and uterus, and (2) an actual deficiency which, in the presence of nausea and vomiting, is increased by a decrease in the carbohydrate intake. Carbohydrate deficiency causes glycogen depletion in the liver as this is the organ in which carbohydrates are stored for use as needed.

Experiments have shown that in carbohydrate starvation the function of the liver is impaired and the body is flooded with toxins. Pathologic changes in the liver lobules similar to those of the fatal toxæmias of pregnancy can be produced experimentally by the use of certain chemical poisons and made to disappear rapidly by the administration of carbohydrates. H. K. GIBSON.

Winans, W. W.: Influenza and Pregnancy—A Symposium. *J. Am. Inst. Homœop.*, 1920, xii, 929.

Questionnaires were sent out to the members of the American Institute of Homœopathy and from the replies received the following statistics were compiled:

The number of reported cases of influenza, simple and complicated, was 2,772. Total influenza cases complicated by pneumonia, 118. Total pregnancy cases, 1 month before full term, 119. Total cases of pregnancy complicated by influenza, 71.

Total deliveries, reported premature or at term, between October 15 and January 15, 84. Stillbirths, 7. Infantile deaths, 6. Maternal deaths, 2.

Total deliveries before term from other causes, 17. Stillbirths, 8. One infantile death. One maternal death.

Total deliveries before term complicated by influenza, 7. Stillbirths, 4. Infantile deaths, 3. Maternal deaths, 1.

Total deliveries before term complicated by influenza-pneumonia, 15. Stillbirths, 3.

Total cases complicated by influenza, 60. Total deliveries complicated by pneumonia, 24. Infantile deaths, 2. Maternal deaths, 4. Total deliveries at term, 109. Stillbirths, 2. Infantile deaths, 6. Maternal deaths, 1.

Schulze, M.: Encephalitis Lethargica in Pregnancy. *J. Am. M. Ass.*, 1920, lxxiv, 732.

The author's review of the recent literature discloses the records of 8 cases of lethargic encephalitis in pregnant women. There were no cases of nona complicating pregnancy in the epidemic of 1890.

Lethargic encephalitis appears to be far more common among males than among females. Of 189 cases reported in recent English and American literature only 67 were those of women and girls and of these only 33 were those of women of the childbearing age. The mortality, however, is considerably higher among women than among men. Of 122 men, 72 recovered and 23 died. Twenty-seven cases were reported before the outcome of the disease was known. Of 67 women, 27 recovered and 24 died. In 16 cases the outcome was not known. The mortality rate among pregnant women appears to be particularly high. Of the 8 patients whose cases have been reported, 1 recovered and 5 died. The outcome in the other 2 cases is not given.

Schulze describes the recorded cases in detail. Neal's case, the only one in which recovery had resulted at the time of writing, was that of a young woman 25 years of age who had been pregnant for five months. Two weeks after an attack of influenza the encephalitis began gradually with headache, chills and fever, vomiting, sweating, and delirium. The spinal fluid showed a great increase in cells and protein, a negative Wassermann reaction, and a negative guinea-pig inoculation for tuberculosis. The patient's condition remained the same for two weeks or more. She then gradually recovered, the facial paralysis cleared up, and she was delivered normally at term.

The only other case beside the author's which came to autopsy was reported by Bassoe. The woman was 34 years of age, an octipara in the sixth month of pregnancy. Death occurred in the fifth week of the disease with hyperpyrexia and pulmonary œdema. The postmortem examination showed the usual changes, i.e., marked congestion of the vessels with perivascular round-cell infiltration, especially in the optic thalium and pons.

The author's case was that of a pregnant woman 35 years of age who was one month past term. She showed a mild toxæmia with blood pressure 140:95 and a faint trace of albumin in the urine. For two weeks before she had complained of aching pains in the arms which at times were so severe as to require morphine to induce sleep. For ten days following a five-hour normal labor she had a low-grade fever which did not reach 38 degrees C. until the tenth day. She then fell into a state of semi-stupor from which, however, she could be easily roused. When addressed, she answered rationally, was clearly oriented, and on questioning complained of diplopia and sleeplessness due to the pain in her arms. A

slight ptosis of the left lid and facial paralysis on the right side developed. Laboratory examination showed the usual findings, a clean, sterile spinal fluid with 26 cells, negative Nonne, Noguchi, and Wassermann reactions and reduction of Fehling's solution. There was a moderate leucocytosis and the nasopharyngeal culture showed bacillus influenzæ.

The neurological findings varied but the patient improved gradually. She had been free from fever for several days when on the twenty-sixth day after delivery she suddenly developed signs of pulmonary embolism and died. Postmortem examination disclosed a thrombosis of both femoral veins and extensive bilateral pulmonary emboli which occluded almost the entire pulmonary circulation. The brain was congested and there was a slight round-cell infiltration of the leptomeninges with marked perivascular infiltration and small hæmorrhages about the vessels which were especially marked in the midbrain and pons. The changes in the medulla were much less marked. The cerebral cortex was normal.

Bugbee, H. G.: Renal Complications of Pregnancy from the Standpoint of the Urologist. *Bull. Lying-in Hosp. N. Y.*, 1920, xii, 11.

The majority of patients with renal complications whom the author has seen presented active symptoms due to infection. If there was drainage, these symptoms were referred to the bladder (frequency, burning, and painful urination); if drainage was absent the symptoms were pain in the flank, tenderness in the costovertebral angle on one or both sides, and often tenderness in front. In some cases also it was possible to palpate the kidney. When drainage was poor, there was an elevation of temperature which was often associated with a slow pulse.

In 90 per cent of the cases observed the infection was due to the colon bacillus. In 75 per cent the bacilli were found on both sides, but in all of them the infection was more severe on one side than on the other. The kidney function was diminished.

It has been the author's practice in these cases to avoid any further manipulation than was absolutely necessary. The patients are often acutely ill, and no more should be done than is indicated to give immediate relief from the symptoms. This means the establishment of drainage. Several cases are cited:

In a woman four months' pregnant who complained of pain in the right upper quadrant of the abdomen a firm, irregular mass developed. The introduction of a catheter into the right renal pelvis resulted in the rapid discharge of clear urine which was free from infection. A pyelogram showed hydronephrosis. Abdominal exploration revealed a large fibroid which was attached to the right side of the fundus of the gravid uterus and pressed on the right ureter. The symptoms were relieved by the removal of the fibroid and the patient went to term.

In 2 cases, a ureteral calculus causing ureteral obstruction was found. In one, the calculus was passed following cystoscopic manipulation. In the other it was removed.

The treatment of renal complications during pregnancy resolves itself first into prophylaxis. Such infections will be prevented when the obstetrician and general practitioner realize more fully the important rôle of the kidneys during pregnancy. The patient's history should be taken more carefully, the catheterized urine should be examined bacteriologically as well as chemically, and any variation from the normal should be an indication for a complete urological examination.

When a kidney infection is already present, drainage should be established to relieve the toxæmia and the supply of toxins and bacteria should be cut off. This means the use of the ureteral catheter, retention of the catheter if necessary, lavage of the kidney pelvis, free fluids by mouth, colonic irrigation, and lastly, urinary antiseptics. EDWARD L. CORNELL.

Vital Aza: Is It Prudent to Temporize in Cases of Ectopic Pregnancy? (¿Prudente contemporización en el embarazo ectópico?) *Prog. de la clín.*, Madrid, 1919, vii, 220.

When abdominal pain and a tendency to collapse occur suddenly in a woman of child-bearing age the possibility of ectopic gestation must be taken into consideration, and when once an extra-uterine pregnancy is diagnosed operation is urgently demanded. The operation should be a laparotomy for the extirpation of the gravid sac.

In cases in which the clinical picture is that of intra-abdominal hæmorrhage, absolute rest, the application of ice to the abdomen, and the administration of morphine are necessary. Injections of salt solution and the use of heart stimulants are absolutely contra-indicated. If the condition shows no tendency to improve or if after apparent improvement it again becomes worse, a laparotomy for the extirpation of the fœtal sac should be done at once.

When a hæmatocele has formed, expectant treatment may be continued for a considerable length of time and in many cases may result in a complete cure.

If operation is planned in a case of recently formed uninfected hæmatocele, it should be a laparotomy.

If the hæmatocele has begun to suppurate the pus should be evacuated and a posterior colpotomy done. M. M. MATTHIES.

Spencer, H. R.: The Lettsomian Lectures on Tumors Complicating Pregnancy, Labor, and the Puerperium. II. *Brit. M. J.*, 1920, i, 246.

The author reports 37 cases of fibroid tumors illustrating: (1) that many small tumors cause no difficulty in labor; (2) that some large tumors (8 of the series) give no difficulty; and (3) that malpositions of the pregnant uterus may be produced

by fibroids. It is estimated that fibroids are present in 1 of every 150 pregnancies. Before the twenty-fifth year of age they are rare. Usually they occur in the latter period of fertility and often are present in multiparæ over 40. Fibroids are considered unimportant factors in the causation of sterility and abortion, but sterility seems to favor their development and regular child-bearing and nursing to some extent prevent their occurrence.

The effect of pregnancy on fibroids is that of hypertrophy and hyperplasia, a gross enlargement with re-arrangement of position and shape due to the growth of the uterus. Degeneration and necrosis, pelvic impaction, inflammation, and secondary infection, especially in the puerperium, are the most frequent changes. After labor a diminution in size and a change of shape often occur. This is illustrated by two case histories, both those of primaparæ 36 and 42 years old, respectively. Torsion of a pedunculated tumor is a source of considerable danger.

The effect of fibroids on pregnancy is the introduction of several factors producing dystocia; namely, placenta prævia, abnormal presentations (breech presentation especially), œdema of the lower extremities, retention of the placenta, uterine inertia, and postpartum hæmorrhage. Case histories are given to illustrate most of these complications. In 3 cases enucleation of submucous fibroids was accomplished through the os uteri in the puerperium.

The error in the diagnosis of pregnancy with fibroids is more often an error in the diagnosis of the pregnancy. Cessation of menstruation is the chief early factor and later the uterine growth and breast signs are important. The "certain" signs may be obscured by the changes in the consistency of the uterine wall and the irregularity due to the tumors. Bulging of the anterior lower segment, which is never observed in normal pregnancy, is sometimes seen when fibroids are present, and when adhesions are present and the fibroids are situated in the fundus it is marked by retroposition. Case histories illustrating complicating tumor degeneration are given. In 1 case the tumor followed section and resulted in sepsis and death. In another, torsion had occurred in a 17-lb. tumor. In a third, torsion of a reniform fibroid resulted in sepsis, thrombosis, and death.

In all cases in which diagnosis is difficult, and especially in cases of inflamed, impacted, or twisted tumors, examination under anæsthesia is most satisfactory. Attention is called to the fact that submucous tumors may be overlooked unless they give rise to hæmorrhage or become degenerated. In the majority of cases the prognosis is good.

Induced abortion, premature labor, and forcible delivery past obstructing tumors are contra-indicated. Forceps may be used for inertia but not to overcome resistance. Craniotomy and embryotomy are permissible only when the fœtus is dead and the mother is not infected. Vaginal myomectomy may be necessary for cervical fibroids but not for retrocervical tumors. Abdominal myomectomy is rarely indicated. It seldom removes all of the tumor present, often leads to abortion, and necessitates later a hysterectomy for hæmorrhage. The tumor should be examined bacteriologically before removal, and if infected, the whole uterus should be taken. The author does not often perform myomectomy or hysterectomy.

Conservative cæsarean section is rarely indicated by the fibroids alone, but may be done in cases of contracted pelvis or malposition. Total hysterectomy following cæsarean section is preferred to amputation, especially as it provides drainage and removes a possibly infected cervix. In the puerperium, vaginal myomectomy is given as the method of choice for submucous tumors. Tables are presented covering the author's cases of abdominal myomectomies during pregnancy. Five of these cases are noted with one maternal death, 1 was operated upon for cystic myoma, 2 for torsion of a reniform pedunculated tumor, in 1 there was necrobiosis and in another, calcification with degeneration. Five conservative cæsarean sections are noted with one maternal death and no fœtal mortality. One case was operated upon for a degenerating infected myoma of the lower segment and 4, for contracted pelvis and fibroids. Six cæsarean sections followed by abdominal hysterectomies are noted with no maternal mortality and one fœtal death before operation. Fibroids were present in all of these cases. In 4 cases they were in the lower segment. In 1 they were in the fundus and produced retroflexion with adhesions. In 1 case there was a footling presentation. W. N. Rowley.

Emerson, N. W.: Cæsarean Section. *Boston M. & S. J.*, 1920, clxxxii, 272.

As performed today cæsarean section is one of the most finished operations and so simple, so rapidly performed, and so definite that it is without danger. Its safety in competent hands has been definitely demonstrated under most astounding conditions. In cases in which the death of the mother is inevitable it will often save the child.

Contracted pelvis has always been a cause of difficulty in labor and often prevents a normal labor. If left to nature, the labor will be tremendously protracted and associated with much suffering to the mother and more or less danger to the child from the delay in moulding the head. The alternative has been the use of forceps, but these only add to the difficulties because they themselves take up some room in the pelvis. Some form of contraction of the pelvis is doubtless the most common cause for the application of high forceps. In Emerson's opinion cæsarean section will be the accepted method of the future in such cases.

In cases of placenta prævia all other methods should be discarded. Whenever placenta prævia is diagnosed, cæsarean section should be the only method considered, whatever the placement of the placenta, either lateral or central. Turning the child and forcibly delivering it, the hæmorrhage being controlled by compression, was accepted so long only because heretofore no other method was

CASES TREATED BY CÆSAREAN SECTION (EMERSON)

Diagnosis	Operation	No. of Cases	No. of Operations	Cures	Deaths	Remarks
Albuminuria	Cæsarean section	6	6	6		One fœtus a monstrosity
Breech presentation	" "	4	4	4		
Cicatricial contraction of cervix uteri	" "	1	1	1		
Contracted pelvis	" "	33	33	33		
Double vagina	" "	2	2	2		
Dystocia	" "	30	30	30		
Dystocia; hydramnios	" "	1	1	1		Fœtus a monstrosity
Eclampsia	" "	8	8	8		
Epilepsy	" "	1	1	1		
Fœtus dead	" "	4	4	4		5 m., 5½ m., 7½ m., 9 m.
Hernia, ventral, postoperative	" "	1	1	1		
Metrorrhagia gravidarum	" "	1	1	1		
Mitral insufficiency; exhaustion	" "	1	1	1		
Myomata uteri	Cæsarean section; hysterectomy	1	1	1		
Myomata uteri	Cæsarean section; myomectomy	1	1	1		
Occipitoposterior position	Cæsarean section	2	2	2		
Placenta prævia	" "	6	6	4	2	
Postoperative adhesions	" "	1	1	0	1	
Spondylitis	" "	1	1	1		
Suspension of fœtus in utero by cord	" "	1	1	1		
Toxæmia	" "	3	3	3		
Transverse presentation	" "	2	2	2		
Uterine inertia	" "	9	9	9		
Total		120	10	117	3	

known. The danger of placenta prævia lies in the hæmorrhage which it was impossible to control by the methods heretofore in use. It is a mechanical condition in which, because of its location, the placenta becomes obstructive and must be more or less dislodged before the child can be delivered. If the child can be extracted the uterus automatically takes care of itself whatever the attachment of the placenta. Therefore it is evident that when placenta prævia is recognized, the removal of the child before the mother is exhausted and before the child is affected would be the most practical method.

Other cases best dealt with by cæsarean section are those in which there is inertia or atony of the uterus and cases of malposition. Postoperative intra-abdominal complications due to adhesions from some faulty operation can be dealt with successfully only by a cæsarean operation.

Cases of pregnancy complicated by a fibroid require a hysterectomy. The only chance for the child is to conduct the pregnancy beyond the viable age if possible, and then do a cæsarean section. The cæsarean section should then be followed by a hysterectomy. In many of the conditions mentioned the first recourse has been the high forceps operation, but Emerson believes the day is approaching when this method and especially the use of axis-traction forceps will be discarded entirely.

When a cæsarean section is contemplated certain precautions should be taken. First, vaginal examinations should not be made unless necessary, and when necessary, should be done under the most aseptic conditions. Before the operation the vagina should be made thoroughly aseptic. When the operation is performed before labor has begun, care must be taken to see that there is some dilatation of the cervix.

A single examination should be sufficient. This examination should be made under complete asepsis even if the delivery is to be effected naturally. Repeated examinations which result in no definite action are a sign of incompetency.

In conclusion the author gives a summary of cases operated upon at the hospital with which he is affiliated. C. H. DAVIS.

Kosmak, C. W.: The Treatment of Certain Cases of Placenta Prævia by Conservative Measures. *Bull. Lying-in Hosp. N. Y.*, 1920, xii, 51.

Among the unsolved problems of obstetrics there is none that demands attention more than placenta prævia. In its graver forms placenta prævia must be regarded as one of the most serious accidents of pregnancy and even in its less marked forms it is potentially dangerous.

Since the perfection of abdominal cæsarean section this operation has been widely advocated as one of the most satisfactory methods of treatment and in a limited class of cases it is of undoubted value. The Braxton-Hicks version with perforation of the placenta and the use of the fœtal thigh as a tampon is becoming generally discarded except in emergencies. When in the case of a primipara presenting a rigid and only slightly dilated cervix a central placenta prævia is suspected but the child is at or near term and still in good condition because the amount of bleeding has not been extreme, the abdominal cæsarean section is the best method of delivery for both mother and fœtus. The large majority of cases, however, do not belong in this group.

The vaginal pack seems to be the best means to stop the hæmorrhage, especially in an emergency, but the blood saturates the gauze or absorbent

cotton ordinarily employed and permits the collection of large clots about it. Therefore the use of the elastic bag instead of a gauze pack has been widely advocated. By the usual procedure the bag is inserted through the ruptured bag of membranes or the mass of the placenta, with or without traction to insure compression. In the attempt to introduce it, however, considerable bleeding may result because of undue placental separation. Kosmak, therefore, advocates the extra-ovular introduction of the bag.

The patient's condition must be carefully watched and if necessary a vaginal examination should be made at least every two hours. If the bleeding reappears an immediate examination is necessary because such bleeding usually indicates the expulsion of the bag. In many instances of incomplete placenta prævia rupture of the membranes occurs spontaneously about this time and the presenting part engages and descends. There is no need for haste and the labor may be allowed to proceed normally.

Bleeding may occur immediately after the delivery of the child. The author therefore believes it advisable to conserve the patient's strength as much as possible by immediate expression of the placenta followed by the injection of 1 or 2 ccm. of pituitrin or the administration of ergot by mouth if prompt uterine contraction does not result. Every case of placenta prævia should be carefully watched for postpartum bleeding. In cases treated by the method described intra-uterine packing has rarely been necessary.

The records of the New York Lying-in Hospital from June, 1904, to December 31, 1918, showed a total of 534 cases of placenta prævia, 75 deaths of mothers (14 per cent), and 105 deaths of children after delivery. A total of 223 stillbirths is recorded, making the total fœtal mortality 328 (62 per cent). These cases were treated by a variety of methods other than the extra-ovular insertion of the bag. While this is rather an alarming proportion of both maternal and fœtal deaths, the fact must be borne in mind that a great many of these patients were sent in by outside physicians after they had been treated by various methods and had had considerable hæmorrhage. EDWARD L. CORNELL.

Mathes, P.: Hæmostasis in Placenta Prævia Centralis (Blutstillung bei Placenta prævia centralis). *Zentralbl. f. Gynaek.*, 1920, xliv, 57.

The author argues that the dangerous hæmorrhage in placenta prævia is not the primary hæmorrhage, but the hæmorrhage occurring after delivery of the child and placenta. As a rule this hæmorrhage is not due to tearing of the cervix but to tearing of the sinuses at the placental site. If the placenta is implanted in the isthmus the circular fibers of the uterine muscle will contract and compress the sinuses, but if the implantation is central this cannot occur because the circular fibers do not extend downward sufficiently far. The use of ergot or pituitrin, therefore, will not be effective in cases of central implantation, and secondary hæmorrhages may occur even though the uterus is firmly contracted.

The author advises immediate manual separation of the placenta by means of the Kocher sound and immediate proximal ligation of all the vessels as they appear. Waiting for the hæmorrhage to cease has frequently resulted fatally. Waiting for the hæmorrhage to appear should also be avoided. As the sinuses have been compressed for some time before delivery the hæmorrhage may not occur immediately.

Cæsarean section does not do away with the danger as it will not be followed by contraction of the cervix. Jaschke has prevented hæmorrhage in such cases by tamponade of the cervix after the operation.

The author reports a case successfully treated by the method described. L. A. JUHNKE.

Frers, A.: Therapeutic Abortion (Aborto therapeutico). *Rev. argent. de obst. y ginec.*, 1919, iii, 430.

The indications for therapeutic abortion as practiced by the author are summarized as follows:

Pernicious anæmia. The clinical and blood picture of primary pernicious anæmia often appears to be the result of pregnancy itself. An analysis of such cases often reveals an antecedent anæmia, chloræmia, albuminuria, rheumatism, or nephritis. This may be regarded as a latent condition which, aggravated by the pregnancy, becomes the cause of the pernicious anæmia. In many other cases the anæmia seems to be due entirely to the pregnancy. When untreated, this condition usually results in premature labor, the death of the fœtus, or the death of the mother between the fifth and seventh months of the pregnancy. In cases of the metaplastic form of anæmia developing during the first three months, abortion should be induced at once. When the anæmia develops after the pregnancy is more advanced, and especially when it is of the hypoplastic form, the patient should be treated medically in the early stages, the pregnancy being interrupted later. In the aplastic form of pernicious anæmia, abortion as well as any other other procedure is useless.

Pernicious vomiting. In the first stage of pernicious vomiting expectant treatment should be employed. Later dietetic management and the use of sedatives and pluriglandular extracts (with the exception of hypophyseal extracts) are indicated. Most important are doses of from 20 to 30 min. of a 1:1000 solution of adrenalin, or from ½ to 1 ccm. of adrenalin chloride for three or four days. If there is no response to adrenalin or to ovarian and thyroid extracts it will be impossible to control the condition because of the profound intoxication. In such cases abortion should not be delayed.

Albuminuria. Albuminuria is a symptom which is of only relative value. An increase of albumin and the presence of casts in the urine in spite of

medical treatment, hypertension, œdema, oliguria, and especially a diminution in the urea content of the urine with an increase in the blood urea amounting to more than .50 should be regarded as an urgent indication for the termination of the pregnancy.

Cardiac insufficiency. When a heart lesion is present an estimate of the cardiac function should be made. This is difficult because of the lack of an efficient method. When there is cardiac insufficiency of only mild degree the pregnancy should be allowed to proceed to term. Aortic insufficiency of moderate degree and other cardiac lesions in which exertion is not tolerated should be regarded as indications for abortion.

Pulmonary tuberculosis. Abortion is indicated in incipient pulmonary tuberculosis as well as in the chronic forms in which the symptoms are aggravated by the pregnancy. It may be necessary also when the tuberculosis is associated with some form of intoxication even though the latter may not appear serious in itself. Apyretic, stationary, fibrotic, and articular forms of tuberculosis are usually compatible with pregnancy.

Cancer. When cancer of a pregnant uterus improves with radium treatment, the pregnancy may be allowed to go to term. If the tumor is operable and if in spite of the radium treatment it increases in size, the presence of the fœtus should usually be disregarded. If the tumor does not respond to radium and is inoperable the greatest care should be taken to save the life of the fœtus.

Diabetes. When diabetes responds to medical management pregnancy may be allowed to continue to term. When the sugar content of the urine increases in spite of treatment and especially if acetone appears, the pregnancy must be interrupted.

Plastic operations on the perineum and vagina. When extensive plastic work has been done on the genital canal recently (less than a year) interruption of the pregnancy is preferable to abdominal cæsarean section. W. R. MEEKER.

LABOR AND ITS COMPLICATIONS

Appleton, P.: Anæsthesia in Obstetrics. *Boston M. & S. J.*, 1920, clxxxii, 321.

Obstetricians are being led to the use of anæsthetics, first, because they are beginning to realize how much a properly given anæsthetic aids in safe delivery, and second, because relief from the pain and distress of labor is now being more generally demanded.

In addition to relieving subjective pain and its resultant exhaustion and shock, anæsthesia greatly conserves the patients' nervous energy and gives better control of the expellent powers. The patient who is exhausted by the nagging pain of a prolonged first stage of labor cannot meet the second stage with the same nervous equanimity and determined effort as the patient who has had help in the first stage and knows that she may have more help as labor progresses.

No single anæsthetic drug combines all the features desirable in obstetrics and certain anæsthetics have decided disadvantages which make them absolutely undesirable. Ethyl ether relieves pain, but when complete relief is obtained there is total muscular relaxation. In obstetrics this means inhibition of uterine contraction. Ether is absorbed through the alveolar lung surface with moderate rapidity and is excreted through the lungs slowly. It embarrasses fœtal respiration to some extent, and therefore is not safe when used for a considerable length of time as the child will be born anæsthetized and its resuscitation will be difficult. Ether is irritating to the kidney tissue and quite unsuitable in the presence of organic renal disease of the mother and the more severe forms of toxæmia. In a large percentage of cases also it causes nausea and vomiting.

Chloroform is much more easily absorbed and is excreted with much greater rapidity than ether. It is therefore preferable for intermittent anæsthesia. It is more pleasant to take and rarely causes nausea or vomiting. As the margin of safety between the stage of anæsthesia and respiratory paralysis is very small, however, the administration of this anæsthetic is to be entrusted only to a careful, painstaking expert anæsthetist. Choloroform is equally dangerous to the fœtus and the mother, and the danger is sufficient to forbid its general use.

Nitrous oxide gas relieves pain without inhibiting the force of uterine contractions. In fact, the results of experimental research indicate that the gas stimulates smooth muscle to contract and therefore increases uterine activity and shortens labor. It is very quickly absorbed and is as rapidly excreted as the expiration rate allows. It rarely produces nausea or vomiting. When combined with air, or better, with pure oxygen, it can be given either continuously or intermittently over a long period of time without harm to either the mother or the fœtus. Recently a simple and highly satisfactory device has been developed which permits self-administration by the patient with perfect safety. This self-administration is of great importance as, after all, the patient herself knows the degree of pain better than any observer and is therefore the best judge of how much relief is needed. Nitrous oxide can be given from the first pain of the first stage of labor to the last pain of the second stage. It is equally available for immediate repair of the perineum, manual detachment, or the Credé manœuvre in cases of placental adherence. For extensive operative work, such as version, forceps or breech extraction, it is practical when given by an assistant.

Morphine, scopolamine, chloral, and drugs of a similar nature have been used alone and in combination. They have one serious disadvantage: once given, their rate of absorption varies with different patients and their rate of excretion is equally uncertain. These drugs are of value, of course, as drugs, but not as anæsthetics. They

have a temporary anodyne effect when the progress of labor is slow and the patient is becoming exhausted by her efforts, and in such cases the temporary rest will allow her to recuperate her powers.

The author believes that when properly given with oxygen and perfectly working apparatus, and supplemented with ether in selected cases, nitrous-oxide can be administered in 99 per cent of all obstetrical cases so as to render the labor practically painless. The expense is much less than is commonly supposed and from the purely technical point of view nervous strain and often true shock are prevented and the general management of the case is facilitated. C. H. DAVIS.

Wormser, E.: Puncture of the Uterus in Hydramnion (Ueber Punktion der Uterus bei Hydramnion). *Zentralbl. f. Gynaek.*, 1920, xliv, 137.

In the case reported there was a history of fœtal death during the last half of several pregnancies which were associated with hydramnion. The only living child was born during the sixth pregnancy which was not associated with hydramnion. Believing, therefore, that there must be some relationship between the fœtal deaths and the hydramnion the author resorted to puncture of the uterus in a subsequent pregnancy in which hydramnion developed. It was planned to repeat this procedure as often as seemed necessary until a living child could be delivered either by premature labor or labor at term.

The puncture was made with a trocar a little below and to the right of the umbilicus at about the middle of the sixth month of the pregnancy. Altogether 1,600 ccm. of clear amniotic fluid were withdrawn. The uterus was reduced about 3 cm. in size. The fœtal heart tones could not be heard either before or after the puncture but the patient felt slight movements of the child. Six days later the fœtal movements ceased and the uterus became tense. During the next four weeks there was no change and no fœtal movements or heart tones could be distinguished. Rupture of the membranes occurred suddenly, being followed a few hours later by the delivery of a macerated child with definite hydrocephalus. Lues was positively excluded in this case.

The author believes the procedure described is harmless and worthy of further trial.

L. A. JUHNKE.

Halsted, H.: An Analysis of Fifty-Six Cases of Breech Presentation; Description of a Method of Delivery in Which Manual Extraction of the Extended Arms Is Rarely Necessary. *J. Am. M. Ass.*, 1920, lxxiv, 796.

Until the breech delivers from the vulva, the procedure is the same as in any other breech delivery. As soon as the breech delivers, the child is covered with a warm wet towel, and gentle traction is made downward and backward, assisted by pressure from above until the umbilicus is delivered. A loop of the cord is then pulled down, the child is grasped about the pelvic girdle, and strong traction is made downward and backward. The bisacromial diameter of the body is kept in the antero-posterior diameter of the maternal pelvis until the anterior scapula is seen to slip under the symphysis. At this point it is very easy to deliver the anterior arm from the vagina. The child's body is lifted over the mother's abdomen, whereupon the posterior arm will slip out. The occiput is allowed to rotate under the symphysis, and the body to go with it. The Smellie-Veit manœuvre is then used.

Before traction is made from below, an assistant makes firm pressure on the child from above and this is continued until the child's mouth is delivered. It is made in such a manner that the head will remain flexed on the chest and the arms will not extend.

In the series of cases reported there were 9 stillbirths. While they remained under the author's care there were no deaths among the babies that were born alive. Fourteen of the mothers were primiparæ and 42 multiparæ. Among the latter were 9 secundiparæ, 9 teriparæ, 6 quadriparæ, 9 quintiparæ, 2 sextiparæ, 2 septiparæ, 2 octiparæ, 1, nonipara, 1 decipara, and 1 undecipara.

The ages of the mothers ranged from 18 to 44 years. The age did not seem to have any influence on either the frequency or the ease of delivery.

The weight of the living babies varied from 3 lb., 8 oz., to 10 lbs., while that of the stillborn babies ranged from 3 lb. (a macerated premature baby) to 11 lb., 11 oz.

No craniotomy was done on an after-coming head, and the forceps were never applied to either the head or the breech, although frequently they were held in readiness.

The longest labor in the series lasted thirty-three hours and fifteen minutes. The shortest labor was two hours and fifteen minutes. The average length of labor was seventeen hours and four minutes among the primigravidæ and nine hours and eight minutes among the multigravidæ.

Among the primigravidæ there were 6 lacerations of the perineum of first degree, 2 of the second degree, and 1 of the third degree. Among the multigravidæ there were 4 of the first degree and 1 of the second degree.

One baby was a monster. Two had club feet, and one of these had also spina bifida.

EDWARD L. CORNELL.

Lackie, J. L.: Artificial Rotation of the Head in Persistent Occipitoposterior Cases. *Edinburgh M. J.*, 1920, n.s. xxiv, 168.

The first essential in the proper management of the occipitoposterior position is an absolutely accurate diagnosis. Usually this can be made from the ordinary signs, but in cases of doubt anæsthesia should be induced even in the first stage of labor and a manual examination made with several fingers or even the whole hand in the vagina. Only when the

progress is not satisfactory is interference recommended. If it becomes necessary the author gives an anæsthetic, completes the dilatation of the os manually, ruptures the membranes, and with the fingers reaching a shoulder rotates the whole child and places the vertex in the R.O.A. or L.O.A. position. Delivery is effected with the forceps after a short time has been allowed for the moulding of the head.

If the position is not diagnosed until the second stage of labor when the liquor amnii has escaped and the head has become more or less fixed at the brim or in the pelvic cavity, the hand is introduced into the vagina, the head pushed back, and the child rotated as before. If this is impossible the head is grasped with the right hand and rotated to an anterior position while, with the left hand acting through the abdominal wall, an attempt is made to rotate the shoulders. If the shoulders cannot be rotated it is difficult to keep the head in the anterior position and an attempt must be made to fix it with the right hand while the forceps are applied with the left hand. If this manipulation fails, rotation can be accomplished safely by means of the forceps applied in the usual way.

The cases most suitable for the method described are those in which the head is through the brim, in the cavity of the pelvis or on the pelvic floor, for then only can the forceps handles be carried around in the necessarily large circle. When the rotation is complete the forceps are removed and re-applied. In this manœuvre it is most important that there should be no traction during the rotation.

Two illustrative case reports are given to show that all possible means should be tried to rectify the malposition before resort is had to force.

C. D. Hauch.

PUERPERIUM AND ITS COMPLICATIONS

Gauss, C. J.: The Isolated Compression of the Aorta, a Prompt, Effective, Painless, and Safe Method of Stopping Hæmorrhage in Obstetrical Practice (Die isolierte Aortencompression ist eine prompt, sicher, schmertz- und gefahrlose wirkende Methode der geburtshilflichen Blutstillung). *Zentralbl. f. Gynaek.*, 1920, xliv, 10.

The author advocates the direct compression of the aorta in cases of postpartum hæmorrhage instead of compression with the Momberg tourniquet. The Momberg tourniquet compresses all the abdominal viscera, is not always successful, and may cause injury. The isolated compression of the aorta produces an ischæmia of the extremities and pelvic structures which makes it of value in all cases of severe hæmorrhage. To obtain such compression the author uses his own aortic clamp or that devised by Sehrt.

Chief among the advantages of the method described is the fact that the aorta is compressed at a point above the origin of the ovarian artery. Moreover, as the vena cava is not compressed, the ischæmia is produced in the lower extremities and pelvic structures. In the uterus itself an absolute ischæmia is produced which permits the suturing of lacerations and the ligation of the vessels. The ischæmia causes prompt, powerful, and lasting contractions of the uterus. Even if the hæmorrhage occurs before the expulsion of the placenta there is no cause for alarm as the placenta will be expelled by the powerful contractions induced. For the same reason it is not necessary to do a manual removal in cases of adherent placenta.

The author cites numerous instances in which the method was used successfully in his own clinics and those of others.

L. A. Juhnke.

NEW-BORN

Sinclair, J. F.: The Problem of the Premature Infant. *Arch. Pediat.*, 1920, xxxvii, 139.

The first problem which presents itself is the maintenance of the body heat. The child must not be chilled at birth. Immediately after birth it should be removed to a hot room (80 to 85 degrees F.) where it should be cleaned and anointed with warmed olive oil. This process must be done as rapidly as possible and the child wrapped in a warmed blanket and placed in a crib.

The crib for the premature infant may be made of a 24-in. clothes basket padded at the bottom with a layer of non-absorbent cotton to the depth of 8 in. Over the cotton fit a sheet of oil-cloth and stitch its edges to the basket. On the oil-cloth lay a small flannel blanket doubled on itself, and on the blanket place a pad of absorbent cotton to serve as the napkin on which the child's buttocks are placed. Line the sides of the basket with pads or blankets. Half a dozen citrate of magnesia bottles with wire and rubber corks, filled with water at 110 degrees F. and covered with flannel, should be hung on the inside of the basket.

The thermometer in the crib should be kept at as even a temperature as possible, for varying temperatures are prejudicial to the child's welfare. The best guide to the degree of heat needed in the crib is the child's temperature chart.

Another equally important problem in the care of the premature infant is that of the nutrition, and this is usually much more difficult to solve. The needs of the premature child are greater than those of a child born at term, but its powers of digestion are markedly less.

The prognosis depends largely on the child's weight and length and the cause of the prematurity, the weight being the most important factor.

Premature infants should be fed with breast milk, either that of the mother or that of a wet nurse. Usually the premature baby is too weak to nurse at the breast or feed from the bottle, and the milk must be given with a Breck feeder or by gavage.

In the beginning the proportion of one-half breast milk and one-half whey should be used. If the Breck feeder is employed, from ½ to 1 oz. may

be given every two hours. If gavage is used, the same amount or slightly more may be given, but at three- or four-hour intervals. Later the dilution of the breast milk may be gradually lessened until the infant is able to digest it without dilution. The quantity given at each feeding should also be gradually increased and the period between feedings extended until 2 oz. is given every three hours. Feeding with modified cow's milk is possible, but should be avoided unless breast milk is not obtainable.

A liberal supply of body fluids should be maintained under all circumstances. This may make necessary the use of normal salt solution subcutaneously, or better intraperitoneally or into the longitudinal sinus. For injections into the longitudinal sinus a 5 per cent glucose solution may also be given with advantage.

The lessened immunity of the premature infant as evidenced by its extreme susceptibility to infections of the respiratory and gastro-intestinal tracts as well as to those of the skin, and its liability to general sepsis is probably due to a smaller quantity of immune substances in its body or the immaturity of the organs which manufacture them.

Anæmia is usually present in a greater or less degree in all premature infants and is due to an insufficient deposit of iron in the body. The condition calls for the administration of iron, preferably in the food, as early as possible.

For the treatment of rickets, phosphorus, calcium, and cod-liver oil should be given as soon as they are tolerated. EDWARD L. CORNELL.

Mitchell, G. A.: The Newer Knowledge of the New-Born. *Arch. Pediat.*, 1920, xxxvii, 151.

A large percentage of infants die in the first weeks of life. Most of these deaths can be attributed to premature birth, congenital malformation, congenital or inherited disease, injury at birth, or "congenital debility."

As it has been variously estimated that from 60 to 75 per cent of the deaths of infants under 1 month of age are due to prenatal causes, much interest has been stimulated in prenatal care.

It is evident that the new-born infant must combat not only diseases peculiar to the first few weeks of life, but also occasionally those that commonly affect older children.

The new-born child must digest and assimilate fat, sugar, and protein, and under normal conditions the necessary ferments to prepare these food-elements for absorption are present in the gastro-intestinal canal.

Many of the reported examinations of the blood in the new-born have been in reality analyses of the blood taken from the cord at birth, and as such represent the condition of the blood of the fœtus rather than that of the new-born infant.

Determinations of the blood sugar have shown that the reduction power of the blood of the new-born is essentially the same as that of the adult and of older children.

At birth there are 3.0 mg. of uric acid per 100 gm. of blood. A maximum of 3.9 mg. is reached by the third day. The quantity then falls off slowly to 2.9 mg. on the fifth day, and then decreases rapidly, reaching 1.6 mg. between the eighth and eleventh days.

In 9 cases in which the fat from the umbilical vein was determined the quantity varied from 0.14 to 0.49 per cent and averaged 0.27 per cent.

It is apparent that at least during the first ten days of life infants do not require the 100 calories per kilogram of body weight which the older writers claimed were necessary.

In deciding whether or not an infant should be fed in the first few days of life it should be borne in mind that the new-born infant requires 60 calories per kilogram of weight every twenty-four hours and in the secretion from the breast he receives only a fraction of such an amount, not enough to supply the energy requirements for combustion alone. Further, that there is considerable loss of water from the child's body and a consequent concentration of the blood. The higher the percentage of water the easier the processes of metabolism. When the glycogen in the liver and tissues has been used up (as it is within a few hours after birth) it is necessary for the child to use its own tissues to supply energy. Although it is certain that the mechanical loss of weight cannot be entirely prevented, it seems logical, in view of these facts, to supply the new-born infant with water or easily digested food of some caloric value. In spite of this, some authors advocate giving nothing until the breast milk comes in and believe that artificial feeding at this time prolongs and increases the loss of weight.

The feeding of cow's milk to the new-born infant, however, means introducing a foreign protein which may be absorbed directly into the blood. Therefore the best procedure is to give breast milk from a healthy woman which has been diluted with boiled water.

When breast milk is not obtainable, 5 per cent lactose solution should be used. The weaker and smaller the infant the more it requires early feeding. EDWARD L. CORNELL.

Bradley, W. N.: Feeding the New-Born. *Arch. Pediat.*, 1920, xxxvii, 144.

The preparation of the mother for the performance of the function of nursing the new-born infant is a vital part of the prenatal care. With few exceptions, every mother can nurse her baby if she so desires.

The statistics of the Starr Center show that in the year 1912–1913 only 48 per cent of the babies under care were breast fed. After six years of insistence upon breast feeding, the statistics of the last fiscal year show that of 92 babies whose mothers had been cared for by the Prenatal Department, 90 were entirely breast fed at 1 month of age, 1 partially breast fed, and 1 bottle fed.

Attempts at maternal nursing should never be abandoned because of the delayed appearance of the milk, failure of supply due to nervous influences or shock, or an upset condition in the baby. In all such cases a little patience and encouragement will usually be successful.

The quality, quantity, and character of breast milk are all influenced by the habits of the mother. Special attention should be given therefore to her mode of living.

As soon after delivery as the mother's condition will permit the baby should be put to the breast for a period of ten minutes. This should be repeated every four hours until the appearance of the milk supply. After that, the child should nurse every three hours for from fifteen to twenty minutes and once at night.

The chief signs of disturbed digestion in the early weeks of life are regurgitation, vomiting, colic, undigested bowel movements, failure to gain, or actual loss in weight. All of these signs should be investigated to ascertain the exact cause of the disturbance. A chemical examination of the breast milk at the outset often aids in detecting the source of the trouble. A moderate degree of regurgitation in the breast-fed baby may be considered physiological, as in some instances no limit is put on the length of time the child is allowed to nurse and it gets too much.

Intercurrent disease of a transient nature in the mother is not sufficient cause for weaning the child. Temporarily it may be given a substitute mixture, measures being taken to retain the mother's supply of milk until it is possible to return the child to the breast.

Galactogogues have been proven worthless. Hess believes that massage and steaming of the breasts are of decided value in improving the milk supply.

If weaning becomes necessary, a wet-nurse should be obtained. If this is impossible, artifical feeding is the only alternative.

During the first few weeks of life the child which is artificially fed should be given highly diluted and boiled cow's milk to which less sugar has been added than for older infants. While a highly diluted formula gives a lower caloric value than will meet the infant's requirements, it is important to begin with a dilution not greater than one-sixth to one-fifth of whole milk and to strengthen the formula gradually in order to accustom the infant's digestion to the food. EDWARD L. CORNELL.

MISCELLANEOUS

Eden, T. W.: Discussion of the Report on the Teaching of Obstetrics and Gynecology. *Proc. Roy. Soc. Med.*, Lond., 1920, xiii, Sect. Obst. & Gynæc., 39.

Under present arrangements medical students in London attend their cases in three different ways: (1) in a maternity district of their own hospital; (2) partly in the midwifery ward and partly in the district; and (3) in a lying-in hospital alone.

The great majority come under the first heading. Practically all such students begin their cases in the district without ever having seen a woman delivered in a lying-in hospital, a maternity ward, or elsewhere, and without having received any clinical instruction in the conduct of labor. During their attendance on their cases they have no supervision and no practical assistance of any kind, even in the management of the infant, a subject of which they are profoundly ignorant. Students trained in this way therefore gain their first ideas of the conduct of labor under the muddled, makeshift, unsanitary conditions usually found in the homes of the poor. They have no hospital standard by which to correct it for they have never seen labor conducted under hospital conditions. What wonder if they conclude that strict surgical cleanliness and careful precautionary measures are unnecessary in midwifery!

The case of the student who goes first to the midwifery ward is much better. Here he sees labor properly conducted under hospital conditions before he begins his work in the district and receives a certain amount of clinical instruction. Unfortunately, very few students have this training, as only four teaching hospitals in London at the present time have a midwifery ward for such instruction.

Some students go only to a lying-in hospital because of the fact that, owing to the nature of their location, certain hospitals have only a small maternity district and are unable to provide all their students with 20 cases. Students go to a lying-in hospital where they can get "signed up" in from fourteen to twenty-one days as having attended 20 labors. In addition, they see a certain number of abnormal cases and gain a certain amount of clinical instruction from the visiting physicians on their rounds. They do not attend cases in the district at all.

There is no doubt that on the whole the training of London medical students is really bad. Nothing more unsuitable than the district conditions could possibly be devised for their training, and it must be admitted that the unsatisfactory results of midwifery practice in general are largely the result of poor training.

The actual mortality is not the only point. We all know how much chronic ill health and disability to perform work result from the minor infections of labor which are not attended by any mortality. The out-patient departments of the hospitals are thronged with such cases. The economic value of female labor to the State is very great, and the loss from these illnesses of national importance. A further frequent late result of minor infections is sterility, which has a bearing also on the national birth-rate. The conclusion drawn from these facts is that the general level of midwifery practice is low and should be raised without delay. Medical practitioners are not entirely to blame as 40 per cent of the confine-

ments in the United Kingdom are attended by midwives. Much of the responsibility, however, rests with the medical profession.

In their investigation upon the teaching of obstetrics and gynecology the Committee of the Royal Society of Medicine of London became convinced that present conditions are such that only drastic and far-reaching changes will suffice and that it is of no use to tinker with the present system. It is obvious that the amount of time alloted in the curriculum to midwifery and gynecology is quite inadequate and should be greatly increased. The Committee therefore suggested that four months should be devoted to these subjects alone.

The next conclusion of the Committee was that proper training in practical midwifery can be given only in a hospital. The management of normal labor is perhaps the most important single clinical subject of the curriculum for the young practitioner as soon as he begins practice gets more of this work than any other. The management of normal labor must be taught as a surgical procedure, under proper conditions, and this can be done only in a hospital.

Further, it was concluded that midwifery training should be extended in both directions, i.e., so as to afford a more extensive study of pregnancy, by means of the ante-natal clinics, and a fuller training in the management of the infant, through the infant-welfare clinics. The conclusion was drawn also that the senior teachers of obstetrics should take a very much larger share in the practical teaching than they do at present. The share they now take is very small and compares unfavorably with what is done by instructors in medicine and surgery.

In considering whether these principles could be put into practice in existing institutions it was decided that the lying-in hospitals would not be satisfactory.

The next alternative is the midwifery ward of the general hospital. This ward should have a minimum of 75 beds, 50 for midwifery cases and 25 for gynecology. The students should be in residence, at any rate for a part of their training, for if not in residence they will never see the night cases and will lose a great many opportunities.

An objection to this scheme is that only the largest hospitals could give up the required number of beds—probably not more than 4 of them—and that to meet the needs of all the London students at least 6 such departments would be necessary. An alternative is therefore necessary. Such an alternative is suggested in the formation of institutions for women of a type new to London but similar to the Rotunda Hospital in Dublin. These institutions, called "centers" would be for the reception of pregnant women, women in labor, lying-in women, nursing women with their infants, and the ordinary run of gynecological cases. They should be organized to provide ample training for medical students and graduates and facilities for research.

Such an institution should be a large one, containing about 200 beds, 140 for midwifery and 60 for gynecology. Its staff should be entirely a resident staff and well paid. There should be a resident director in charge of the clinical work, the laboratory work, and the teaching. Under him should be 2 assistant directors and under them a staff of resident assistants. The students should be in residence for a part of their training and attached to the institution for four months.

The centers could be arranged in parts of London where there is urgent public need for increased midwifery service. In 1915 the Local Government Board issued a report on the maternal mortality of childbirth in the United Kingdom. A study of this report shows that the death rate is highest in districts in which hospital accommodation is least and lowest in districts in which it is greatest. There is therefore every reason to believe that the establishment of a greater number of maternity hospitals would very greatly decrease the mortality in connection with childbirth.

Another advantage would be that ample clinical material would be provided for training students and junior practitioners.

The system by which all the teachers would be in residence would enable the senior teachers to take their proper share in practical teaching, which they cannot do at present, and would offer them scope for clinical work and research worthy of the very best men.

C. H. Davis.

Barrett, Spencer, H., and Williamson, H.: A Criticism of the Report of the Committee of the Council of the Section of Obstetrics and Gynecology of the Royal Society of Medicine upon the Teaching of Obstetrics and Gynecology in London. *Proc. Roy. Soc. Med.*, Lond., 1920, xiii, Sect. Obst. & Gynæc., 47.

The ultimate goal of the Committee is a system of education based upon two essential principles:

1. The establishment of large centers devoted solely to the study of obstetrics and gynecology and not forming part of a general hospital or medical school.

2. The provision of extensive clinical material.

The authors believe these two principles are incorrect. In their opinion the obstetrical and gynecological clinic should be part and parcel of a general hospital and medical school. Close cooperation between the gynecologist, the pathologist, the surgeon, and the physician is essential and such co-operation is possible only when the obstetrical clinic forms part of a general hospital both geographically and constitutionally.

The authors do not regard extensive clinical material as essential for the education of the student. The clinic need not be a large one. The minimum requirements are: (1) an out-patient pre-maternity clinic; (2) a few (say 6) pre-maternity beds; (3) a lying-in ward of not less than 20 beds; (4) a few (say 4) beds for septic cases; (5) an out-patient maternity district adequately supervised; (6) an infants' welfare center, pref-

erably a branch of the children's department; (7) a gynecological ward of 25 or 30 beds with an operating table; (8) a well-equipped clinical laboratory; and (9) a room for storage and investigation of morbid anatomical material.

The staff of such a clinic should consist of:

1. Three visiting obstetricians, all of whom should teach both obstetrics and gynecology.

2. A resident officer of ıe standing of a resident assistant surgeon or physician who should hold office for a period of not less than three years and be held responsible, under the direction of the visiting staff, for the practical instruction of the students in the lying-in ward and for the direction of the pathological work of the clinic. This officer should receive a salary of not less than £500 per annum.

3. A registrar and tutor.

4. Two resident officers of the standing of house physicians or house surgeons.

This system would offer many advantages to the student, the school, and the public over that of the whole-time officer proposed by the Committee.

Obstetrics and gynecology should be taught as one subject by the same teachers, and the student's studies in the two branches should be carried on simultaneously.

The clinic should remain essentially a part of the general hospital and the whole course in obstetrics and gynecology given in one school.

Every medical school should have its own lying-in ward.

C. H. DAVIS.

Norris, C. C., and Rothschild, N. S.: Pennsylvania State Prenatal and Postnatal Clinic at the Henry Phipps Institute in Philadelphia, a Brief Report of the Work Done During the Past Year. *Pennsylvania M. J.*, 1920, xxiii, 338.

As soon as the patient registers at the Pennsylvania State Prenatal and Postnatal Clinic at the Henry Phipps Institute in Philadelphia she is given a pelvic examination. If the diagnosis of pregnancy is confirmed, measurements are taken and as early in pregnancy as possible a diagnosis of the presentation is made. Blood is obtained for a Wassermann examination. If the patient is not in good condition and if she presents any symptoms suggestive of disease, she is referred to the proper clinic for a thorough examination of the chest, heart, lungs, throat, or nose as may seem desirable.

Within a few days the patient is visited at her home by the social service worker. At this visit the blood pressure is taken and a specimen of the urine is obtained. The patient is verbally instructed as to the hygiene of pregnancy and printed instructions on this subject are left with her.

As a rule arrangements are made for delivery in one of the maternity hospitals.

Toward the end of the pregnancy a course of instruction regarding the care of the child is begun. In this, emphasis is laid upon keeping the infant well rather than upon its care during illness, though the latter is by no means omitted.

When the mother and child are to be discharged from the hospital the Prenatal Clinic is notified and a social service worker routinely visits these patients within a day or two at their homes. At this visit the mother is instructed to return to the Clinic for examination. In a normal case the final pelvic examination is given six or eight weeks after delivery. If lacerations are found, arrangements are made for their repair either immediately or, more often, at some later date.

In the first visit to the patient after her return from the maternity hospital or after her delivery in her home the social service worker arranges for the mother to bring the child to the Prophylactic Clinic at the Phipps Institute. This is a very important branch of the clinic. At this visit the child is weighed and further instructions are g'ven the mother regarding the clothing, nursing, bathing, and general care of the infant.

The mother is told also to report at once to the Sick Infant's Clinic if the chi!d does not progress well.

These two clinics, the Prophylactic and the Sick Infant's Clinics, are held on the same day, the one following the other. An endeavor is made, however, to keep the well children from coming in contact with those which are s'ck. The same physicians have charge of both clinics, an arrangement which greatly facilitates the work.

The social service worker visits the patient at her home and sees that the instructions are properly carried out.

The personal element, especially as regards the social service worker, is of the utmost importance and in fact the keynote of success. No routine of the sort described can be carried out without a good social service worker, and it is on her and her stability, efficiency, tactfulness, and common sense that the work will stand or fall.

EDWARD L. CORNELL.

GENITO-URINARY SURGERY

ADRENAL, KIDNEY, AND URETER

Braasch, W. F.: Recent Advance in the Diagnosis of Surgical Lesions of the Kidney. *Minnesota Med.*, 1920, iii, 112.

In roentgenography of the urinary tract sodium bromide as suggested by Weld is an ideal opaque medium and takes the place of the salts of colloidal silver and sodium iodide. Pyelography has added greatly to the accuracy of diagnosis, especially in the differentiation of renal calculi and gall-stones. The pyelographic data differentiating intra- from extra-renal lesions are: (1) the distance separating the shadow from the pelvis, (2) the exact relation of the shadow to the pelvis and (3) the presence of pathologic changes in the pelvic outline. Tuberculous renal caseation may simulate lithiasis.

The shadows seen in renal tuberculosis are of three types: (1) small scattered areas due to the deposit of lime in the calices, (2) larger shadows of irregular density, some of which may assume the characteristics of renal stone, and (3) casts of a portion or even of the whole caseated kidney.

Pyelography aids in the exact localization of a stone within the kidney, whether it is situated in the pelvis, a calyx, or the cortex. The fluoroscopic examination of the kidney at the operating table, as recently developed at the Mayo Clinic, will detect stones or fragments which remain after lithotomy.

Renal functional tests may be divided into tests of excretion and tests of retention. Among the tests of excretion the phenolsulphonephthalein test is the most favored and may be employed in the combined or the differentiated method. In the combined method 1 ccm. of phenolsulphonephthalein is injected intramuscularly and an estimation is made of the dye secreted by both kidneys in the two hours following its appearance in the urine. In this test two types of errors may arise: errors in technique and errors in interpretation. The technical errors may be such as: (1) the introduction of an excessive or insufficient amount of phenolsulphonephthalein into the syringe for injection, (2) the loss of a portion of the phenolsulphonephthalein solution from the syringe or needle at the time of the injection, (3) abbreviation or extension of the two-hour period of collection on the part of the patient, (4) loss of part of the urine collected during its transference to the receptacle from which the estimate is to be made, (5) retention in the bladder of a portion of the urine secreted, either because of a pathologic condition or misunderstanding on the part of the patient, (6) error in laboratory technique, such as insufficient alkalization, inefficient interpretation of color values, etc., and (7) clerical errors.

A case in which the function is less than 30 per cent should be studied carefully before operation. The possibility of the presence of retained urine at the time of the test should be borne in mind. Retention may be due to some condition of the prostate, a diverticum, sacculation of a ureter, or hydronephrosis. The reflex irritation from stone may cause a lowering of function which will be recovered after the removal of the stone.

When in the presence of clinical or X-ray evidence of a decrease in one kidney the combined phenolsulphonephthalein test is normal it cannot be assumed that the other kidney is normal as the combined test will be normal even in the presence of bilateral tuberculosis, bilateral renal lithiasis, and polycystic kidney.

The differential functional test is the estimation of the phenolsulphonephthalein excreted by each kidney separately. A ureteral catheter is placed in each ureter and the dye injected intravenously. If the kidney is normal it will secrete from 15 to 30 per cent of the dye.

Hypersecretion in nervous patients or hyposecretion caused by reflex inhibition of secretion by the catheter may alter the results. The return flow along the ureteral catheter, if not allowed for, will cause an error. Peterson has suggested collecting 25 ccm. of urine from each ureter and making a relative comparison.

Methylene blue and indigo-carmine are valuable excretory tests. Thomas has developed a method for the quantitative determination of the blue test These tests may be made at the same time as the phenolsulphonephthalein test.

The retention tests have been advanced by the estimation of the uric acid, urea, and creatinin in the blood by Folin and Denis, Marshall, Meyers, and Fine. Forty milligrams of urea nitrogen for each 100 ccm. of blood should indicate a guarded prognosis, while 100 mg. gives a grave prognosis. A determination of 2.5 mg. of creatinin in the blood indicates renal disease, while amounts of 5 mg. or more indicate an early fatal termination.

Cabot and Crabtree believe that the clinical course of an infectious renal lesion depends on the type of the infecting organism, the coccus group locating in the glomeruli and the colon group in the tubules and pelvis of the kidney. According to Sweet, Eisendrath, and others, urinary infection occurs by the lymphatic route, while Cabot and Crabtree believe it to be always hæmatogenous. The possibility of absorption from the renal pelvis has been demonstrated by Burns and Weld.

More recently symptomless unilateral hæmaturia has been regarded as the result of an insidious chronic infection of the renal papillæ.

In conclusion the use of the wax-tipped catheter as advanced by Kelly to detect urinary stone is advocated, and the wide strictures or infiltration of the ureteral wall described by Hunner are discussed.

J. A. H. MAGOUN, JR.

Danforth, W. C.: Infections of the Kidney in Gynecological Practice. *Surg., Gynec. & Obst.*, 1920, xxx, 284.

During the past fifteen months in his gynecological practice the author has treated 25 cases of pyelitis, 3 cases of pyonephrosis, 1 case of obstruction of a ureter due to an aberrant renal artery, 2 cases of renal tuberculosis, and 1 case of pyelitis associated with imperforate vagina and absence of the uterus. In 23 of the cases of pyelitis the condition was due to the bacillus coli; in 1, to pneumococci; and in 1, to staphylococci. The article contains a number of interesting case reports.

Renal infections are about four or five times as frequent in the female as in the male, and when the incidence of pyelitis in pregnancy is considered, this ratio does not seem excessive. The author believes that in the study of the etiological factors of infections of the kidney not sufficient emphasis is laid upon infections of the urinary tract which occur in infancy. In the gynecological-obstetrical service of the Evanston Hospital, Evanston, Illinois, it has been made a routine practice to obtain specimens of urine from all infants in the ward service as soon as possible after birth. Danforth has done the same in his private practice for about two years. The frequency with which pus has been found in the urine has been striking. As a result of these investigations the author concludes that it is fair to assume that there are many unrecognized infections of the kidney in infancy which in later life may become serious. He suggests that a routine examination of the urine be made during the first week of life. The active routine treatment of urinary infections revealed thereby would be a valuable measure.

There are four possible routes by which infections may enter the kidney:

1. Through the lumen of the ureter. While this route is probably not followed frequently, it must be regarded as a possibility as cystograms show that fluid in the bladder may travel up the ureter, particularly if it is dilated, and radiograms often show a stone low in the ureter which at operation is found at a much higher level because of retrograde peristalsis.

2. Through the lymphatics and the wall of the ureter. By this route, however, infection through the lymphatics could scarcely travel the length of the ureter in an unbroken path, for if the lymphatics follow the ureteral blood vessels they would be apt to leave the wall of the ureter before arriving at the level of the kidney.

3. Through the lymphatic connection between the cæcum and the ascending colon. This is a route by which infections may pass directly from the bowel to the ureter. Certain French writers have suggested that there may be some relationship between appendicitis and lesions of the right kidney.

4. The blood stream. As colon bacilli are always found in large numbers in the large bowel, they must be present at times, if not constantly, in the blood stream. Under normal conditions bacteria are excreted by the kidney without damage to the parenchyma, but when drainage from the kidney is obstructed or the bodily resistance is lowered, infection may occur. The frequency of pyelitis in pregnancy the author believes is explained by the pressure exerted on the ureter by the pregnant uterus. He is of the opinion also that many women pass through pregnancy with a mild infection of the kidney which escapes recognition.

Quoting Cabot and Crabtree, Danforth divides cases of non-tuberculous infections of the kidney into three classes: first, those due to bacilli of the colon group; second, those due to cocci; third, those of both coccal and bacillary origin. Appendicitis and pyelitis must be differentiated and an appendectomy performed during pregnancy should always be preceded by a microscopic examination of the urine.

In the author's experience lavage of the kidney is the best method of treatment. In mild pyelitis associated with severe cystitis, however, lavage of the kidney should not be attempted until the cystitis has been lessened. The bowels must be kept open and the patient given bacillus bulgaricus. The kidney should be irrigated at four-day intervals with silver nitrate solution varying from 1:300 to 1:100. The number of lavages required varies from one to six, and is usually three or four.

The practice of treating what appears to be a cystitis by medication by mouth or irrigation of the bladder cannot be too strongly condemned.

The criterion of cure is the absence of bacteria in one culture, or better, in two successive cultures, of the urine.

J. P. O'NEIL.

Hutchinson, W.: Renal Calculus. *Canadian M. Ass. J.*, 1920, x, 250.

The author gives a brief outline of the pathology, symptoms, physical signs, diagnosis, and treatment of renal calculus, and describes his method of removing renal calculi.

A renal calculus begins with a small deposit of salts in the kidney substance. It increases in size by the addition of more salts and becomes firmly embedded. Eventually it may break through the calyx, grow into the pelvis, or branch out and grow into an adjoining calyx. Occasionally it becomes loosened from its attachment and plugs up a calyx, thus producing the renal type of uronephrosis. This type of stone affects the kidney by: (1) direct pressure, (2) inflammatory reaction, and (3) the dissolving action of bacterial invasion.

In some of the author's cases there were no symptoms, and in many cases the only symptom was pain of a dull aching character in the loin. This was relieved by rest and was frequently diag-

nosed as lumbago. Hæmaturia was rarely observed. General disturbances were noted only in the late stages of the condition. The early signs were indefinite. Tenderness to pressure is usually posterior but may be anterior and cause confusion in the differential diagnosis from gall-stones. The urine may show a few pus and blood cells. In other cases it may be negative or full of pus. In the late stages enlargement of the kidney and severe inflammation are present.

An early diagnosis is necessary to prevent destruction of the kidney. The practitioner should be suspicious of every case of loin pain and have the patient examined by a competent urologist. The X-ray is almost infallible in the diagnosis of stone in the kidney. Ureteral catheterization, while of no diagnostic value, will prove the presence of a second kidney when nephrectomy is indicated.

Operation is the only cure for renal calculi. In the author's opinion all cases should be operated upon, even those in which there are no symptoms. He advises removal of the stone through the kidney substance rather than through the pelvis. He does not agree with Broedel that when the kidney is split longitudinally, just behind the midline, the pelvis may be entered without injury to the large branching vessels. In experiments on animals he found that the longitudinal incision required mattress sutures to control the bleeding, but that when the kidney was incised transversely only a few stitches were necessary. He observed also that after a few months, kidneys which were split longitudinally showed considerable infarction and were greatly reduced in size while those which had been split transversely showed only a small linear scar and were not reduced in size.

The author's technique for renal calculi is as follows:

The stone is located by the X-ray or, when necessary, by a pyelogram. The capsule is incised over the stone and the handle of a scalpel gently pushed through the kidney down to the stone. The stone is then removed with the forceps. If the calculus projects into the pelvis, the pelvis is opened.

The importance of the following points is emphasized:

1. Early and careful urological examination of all patients suffering with pain in the back in order that the diagnosis may be made early.

2. Double ureteral catheterization before operation.

3. The use of small transverse incisions instead of a longitudinal incision. G. J. THOMAS.

Molla, R.: Clinical Considerations of Tumors of the Kidney, with a Report of Two Cases of Myxoma (Consideraciones clinicas sobre los tumores del riñón con motivo de dos casos de mixomas). *Med. Ibera*, 1920, x, 113, 134.

Molla reviews the pathology and diagnosis of renal tumors and reports 2 cases of myxoma diagnosed by microscopic study. He concludes that renal myxomata are very rare and difficult or impossible to diagnose. In the few cases reported by others the diagnosis was not made until after operation.

In the first of the author's cases a diagnosis of hydatid cyst was made largely by exclusion and on the basis of the local signs, the patient's fair general condition, and the absence of definite symptoms. In the second case the symptoms resembled those of a chronic inflammatory process such as a retroperitoneal cold abscess of the vertebræ or the appendix. It is therefore evident that myxoma of the kidney may develop without giving rise to symptoms such as local or referred pain, hæmaturia, and pyuria.

A renal myxoma may become very large. Sarcoma in children may reach the same volume but is more rapid in growth and usually gives rise to urinary symptoms and clinical manifestations both local and general.

The absence of urinary symptoms in cases of renal myxoma is partially explained by the fact that there is usually mechanical obstruction without invasion of the ureter. Exclusion and spontaneous suppression of renal function in the affected kidney without involvement or insufficiency of the other kidney is common. Invasion by contiguity occurs only in the late stages when the intestines and lumbar tissues become involved. Diffuse metastasis by way of the blood stream is very exceptional.

A myxoma thus differs from a sarcoma not only clinically but anatomically. Sarcomata become generalized comparatively early.

In their location and size the tumors in the author's cases resembled tumors of the adrenal but the autopsy demonstrated their myxomatous nature and their primary origin in the kidney. They resembled also the sarcomatous tumors of infants described by Bland-Sutton, but the diagnosis of renal myxoma was confirmed by the ages of the patients, 35 and 27 years respectively, and the findings of the microscopic examination.

W. R. MEEKER.

O'Conor, V. J.: Riedel's Lobe of the Liver Complicating Urological Diagnosis. *J. Urol.*, 1920, iv, 97.

This paper is based upon 2 cases which were admitted to the urological service of Dr. Quimby at the Peter Bent Brigham Hospital and demonstrate the possibility of confusing this condition with lesions of the right kidney.

In both cases the diagnosis was verified by operation. In the first case the right kidney was exposed through the usual oblique incision and found normal. The final diagnosis was Riedel's lobe and bilateral pyelitis.

In the second case the condition was diagnosed before operation as hypernephroma. Both kidneys were normal. H. L. KRETSCHMER.

O'Neil, R. F.: Observations on the Hæmaturia of Chronic Infectious Focal Nephritis. *Internat. J. Surg.*, 1920, xxxiii, 72.

The terms "essential hæmaturia" and "idiopathic renal hæmaturia" should be limited to hæmaturia for which no cause can be found and to unilateral hæmaturia which is due supposedly to calculus, tuberculosis, or neoplasm, but in which cases at operation no gross pathology is discovered.

In the cases reviewed by the author there were often no lesions, but a certain number showed chronic nephritis. In O'Neil's opinion the relation of idiopathic hæmaturias to chronic nephritis is too constant to be a coincidence and the underlying cause is nephritis.

The chief point to be determined by the surgeon in the treatment of unilateral hæmaturia due to nephritis is whether the nephritis is of toxic or infectious origin.

Israel stated that unilateral nephritis may cause colic and hæmaturia, and may be severe without casts or albumin, and that bilateral nephritis may give rise to symptoms on one side only.

According to Rovsing, the urine may be infected in some cases of hæmaturia and in some instances infectious nephritis cannot be differentiated under the microscope from interstitial or toxic nephritis. Rovsing stated also that, unlike the toxic nephritis which is always bilateral, lymphatic infections may be limited to one kidney or a part of one kidney.

Chute divides cases of nephritis into three groups as regards the prognosis and treatment:

1. Cases of frankly toxic, chronic, and interstitial nephritis in which the urine is typical of diffuse interstitial or parenchymatous nephritis and in the majority of which the hæmaturia is unilateral. In these cases operation is not encouraging.

2. Cases of hæmaturia which is infectious at the time of bleeding as shown by the bacteriological examination of the urine.

3. Cases of chronic nephritis of infectious origin which has become non-infectious at the time of bleeding.

O'Neil doubts whether hæmaturia can come from a healthy kidney, and while agreeing with Keys that bleeding may be due to a ruptured renal varix or the vascular plexus at the apex of the papillæ, he is of the opinion that nephritis is the underlying cause. He admits that purpura gives rise to hæmaturia, but believes that the diagnosis should be confirmed by other evidence of the disease.

After considering the many probable sources of "renal symptomless hæmaturia" O'Neil states that the diagnosis will depend upon the care with which all causes of bleeding are eliminated. Such elimination calls for the clinical history, cystoscopy, ureteral catheterization, X-ray, pyelography, urinalysis, bacteriology, renal functional tests, and a physical examination.

The symptoms are generally bleeding from the kidney for a long time with very little discomfort, a feeling of heaviness, and a dull, aching pain on the affected side or in the back which is not influenced by rest or motion, is occasionally colicky, and extends down the ureter. According to Rovsing, all of these are probably due to overdistention of the renal capsule. The urine usually contains blood and albumin and sometimes shows pus. Casts indicate a toxic nephritis, but according to Israel may be present between the attacks of bleeding.

When there is bleeding only, and when tuberculosis and calculus have been excluded, the exclusion of tumor may require operation although "essential hæmaturia" usually occurs earlier in life than a neoplasm.

In hæmaturia from chronic infectious focal nephritis nephrectomy is contra-indicated. Determine first that the hæmaturia is unilateral and then limit the operation to the freeing of adhesions, decapsulation and fixation, or nephrotomy. Decapsulation and nephrotomy have given equally good results, but decapsulation is the safer operation.

B. F. Roller.

BLADDER, URETHRA, AND PENIS

Kolischer, G., and Eisenstaedt, J. S.: Complete Closure of the Urinary Bladder after Coagulation of Tumors. *J. Am. M. Ass.*, 1920, lxxiv, 801.

It has always been a cause of regret to genito-urinary surgeons that in most operations on the bladder it is impossible to finish the procedure at once because of the necessity or supposed necessity for tubal drainage. This was one of the main reasons for the treatment of bladder tumors by cystoscopic endovesical methods. Endovesical treatment includes fulguration, galvanocauterization, and diathermy.

In certain types of cases, however, open operation must be done. For these types the authors have perfected a method of completely closing the bladder which quite constantly ensures primary union even in the presence of vesical infection. The superiority of destroying vesical tumors by heat over excising them with the knife is becoming more generally appreciated by urologists.

The essential feature of the authors' method is the closing of the bladder wall with mattress sutures and inversion of the edges of the mucosa. This union is re-inforced by whipping over a simple continuous suture. Thorough subfascial drainage is obtained by inserting a narrow rubber tube under the fascia of the recti parallel with the incision and bringing its ends out at each end of the skin wound. The bladder is opened by suprapubic cystotomy in the usual manner, the tumor is freely exposed with retractors made of fiber or hard rubber, and the coagulation is thoroughly accomplished by the galvanocautery or diathermy. The bladder and abdominal wall are then closed completely except for the subfascial drainage.

After operation the patient may be able to urinate spontaneously. If not, he is catheterized at regular intervals. A permanent catheter is not used be-

cause of the associated danger of urethritis, vesical irritation, and ascending infection. If symptoms of cystitis are observed, 20 per cent argyrol is instilled into the bladder twice a day. The subfascial drainage tube is removed after twenty-four hours. The bladder and abdominal wound are usually entirely healed in seven or eight days. If malignancy is suspected or proven, radium or mesothorium is inserted into the bladder by means of a urethral carrier.

Whether this method and technique are applicable to extensive carcinomata involving the base of the bladder remains to be demonstrated by further experience. J. P. O'Neil.

GENITAL ORGANS

Soresi, A. L.: Prostatectomy. *Internal. J. Surg.*, 1920, xxxiii, 49.

Soresi suggests the following procedures to facilitate the surgical treatment of enlargement of the prostate.

1. To prevent irritation of the skin shave the operative field and dry it with hot air. Then for a distance of about 3 cm. around the area where the incision is to be made rub the skin with ether and gauze and paint it with two or three coats of common rubber cement in about five parts of ether. To this area then apply firmly a dry sterile piece of sheet rubber (dentists' dam) of sufficient size to cover the upper third of the thighs and the abdomen up to the umbilicus. After this the incision may be made in the ordinary manner.

2. To prevent infection of the prevesical space suture the skin to the bladder and do not open the bladder until after adhesions have formed. In this suturing only the very edge of the skin and the subcutaneous connective tissue should be included in order that the scar may be very thin. Local anæsthesia should be used.

3. To prevent postoperative hæmorrhage apply to the bed of the prostate a rubber bag filled with mercury through which is a tunnel for drainage of the urine. Into the tunnel of the bag fit a catheter so that it passes through the entire bag and its tip reaches the bladder. If the catheter causes discomfort it may be easily withdrawn without disturbing the mercury and the mercury may be withdrawn or replaced at will. T. F. Finegan.

Singleton, A. O.: Reducing the Mortality in Prostatic Operations. *Texas State J. M.*, 1920, xv, 403.

Singleton classifies the causes of death in prostatic operations in the order of their importance as follows: hæmorrhage, shock, and infection.

Uræmia as a cause may be eliminated by determining the power of the kidneys to withstand the operation. For this the phenolsulphonephthalein test is insufficient. This test is indispensable as a test of function but the power of the kidneys may be determined more accurately by estimating the blood urea. The author cites cases of uræmic coma and death following prostatectomy in which the phenolsulphonephthalein excretion was normal, 50 per cent in the first two hours, but the blood urea was above normal, 90 mg. per 100 ccm. of blood. He will therefore no longer remove the prostate when the blood urea is high except to establish permanent suprapubic drainage. For estimating the blood urea the urease method is recommended.

The chances of both uræmia and infection are greatly reduced by performing the operation in two stages. Shock is reduced to a minimum by combined local and sacral anæsthesia. Nitrous oxide may be used in short operations although it increases hæmorrhage. Ether is definitely contraindicated.

The principal steps in the author's technique are as follows: (1) a hypodermic of morphine and atropine; (2) an injection of 1 oz. of a 1 per cent solution of novocaine into the sacral canal with the patient lying on his right side; (3) irrigation of the bladder with a catheter with the patient on his back, 12 oz. being left in the bladder; (4) infiltration of the abdominal wall and bladder with a 25 per cent solution of novocaine; (5) infiltration of the prostate with adrenalin; (6) shelling out of the prostate with a gloved finger in the rectum and a bare finger through a suprapubic opening; (7) control of hæmorrhage with an Allen pack of gauze drawn into the prostatic cavity by means of a string through the urethra or with a Freeman pack of gauze packed in directly, to which the volsellum is left attached; (8) removal of half of the packing on the third day and the rest on the fourth day; and (9) daily irrigation of the bladder by way of the urethra and a suprapubic tube until the wound is healed.

B. F. Roller.

MISCELLANEOUS

Reinle, G. G., and DePuy, E. S.: Refinement of Colorimetric Methods with Special Reference to Indigo-Carmin as a Bladder Test. *California State J. M.*, 1920, xviii, 49.

While accepting phenolsulphonephthalein as the most valuable single test of renal function, the authors point out certain disadvantages which they have found to arise when it is used in the customary manner. Employing the aqueous standard solution and a Hellige colorimeter, they discovered that their readings in a series of comparatively normal cases were constantly lower than the normals set by Rowntree and Geraghty which were based on readings made with the DuBosc colorimeter. An accurate comparison could not be made between diluted urine containing phthalein and an aqueous standard solution, especially when a transmitted light method was used as is the case when the Hellige apparatus is employed. A special instrument with reflected light as proposed by Peebles was therefore constructed and the results were much more accurate.

Using as a standard solution a mixture of an aqueous and a urine standard in the same proportions as the dilution of the fluid to be tested, i. e., the urine specimen diluted with water up to 1,000 ccm. and employing the reflected light method, it was found that the readings were from 10 to 25 per cent higher than those obtained by the old method (aqueous standard and transmitted light), the variation depending upon the amount of coloring matter in the urine tested.

To discover a method applicable to urine containing blood, the authors made a further investigation of the relative values of phloridzin, the iodide test, lactose, the polyuria test, methylene blue, rosaniline, etc., and concluded that all of these were inferior to indigo-carmin. Indigo-carmin they claim will give as accurate an estimation of renal function by colorimetry as phthalein, and they suggest its use as an alternative or supplement whether blood is present or not. The amount of blood which may destroy the value of the test is not stated. Owing to the fact that the dye reaches the height of its elimination within a few minutes after its appearance (three to five minutes), the specimens may be taken and readings made much more quickly than when phthalein is used. A disadvantage, however, lies in the instability of indigo-carmin which renders necessary the fresh preparation of the solution for intravenous injection and the standard solutions. The technique is described.

HORACE BINNEY.

Stevens, A. R., and Peters, J. P.: Urinary Tract Purpura: A Probable Entity. *J. Urol.*, 1920, iv, 1.

This paper is based upon a study of 37 cases which the authors observed in a period of eighteen months' work in France.

Two of the patients had had diphtheria; 2, rheumatic fever; 3, recurrent attacks of tonsillitis; 8, dyspnœa; and 4, recurrent respiratory infections. Only 3 had had attacks of gonorrhœa and these showed no residual signs of the disease.

As a rule, the onset of the urinary purpura was sudden and the condition was fully developed in forty-eight hours. In some cases the urinary symptoms were preceded by general symptoms such as headache, pain in the legs, malaise, giddiness, and weakness. The onset was characterized by marked prostration and malaise, headache, pain in the legs and back, gross hæmaturia, frequency and urgency of urination, dysuria, and pyrexia. These symptoms varied in the order of their appearance and their relative severity.

In patients who were admitted to the hospital during the febrile period the disease resembled an acute infection. The pains were of two types: those that seemed to be due to a general infection and those that were referable to the urinary tract. The urinary pains varied from dull aching in the lumbar region and upper abdomen to acute pain or renal or vesical colic, and were usually associated with marked tenderness over the kidneys and bladder. In some cases dizziness and herpes labialis were present. As a rule the initial temperature was quite high. In every case in the early stages of the condition the urine contained gross blood.

In all but one case casts were found in the urine at some time. Usually they were of the hyaline and granular types, but in at least 17 cases epithelial and red blood casts were found.

Only one patient was discharged from the hospital with consistently negative urinary findings and without symptoms. In the majority of the cases the urine still showed a slight trace of albumin and casts when the patients were evacuated to England.

Definite diminution in the excretion of phenolsulphonephthalein was noted in all but 4 cases.

Cystoscopic examination showed essentially the same picture in every instance: multiple small hæmorrhages into the bladder mucosa not associated with ulceration, neoplasm, or calculus. Two cases showed congestion of the entire bladder wall. The number of hæmorrhages varied from two to over a hundred. The hæmorrhagic areas were irregular in shape and were noted chiefly in the posterior and lateral walls of the bladder. No hæmorrhagic spots were found adjoining the margin of a ureteral orifice. No blood was seen oozing from the bladder mucosa. When gross blood was present at the time of cystoscopy, blood was seen to come from both ureteral orifices. Endoscopy showed hæmorrhagic spots in the verumontanum.

The pressure of a definite renal lesion was indicated by the consistent presence of casts in the urine and the reduction of renal function as indicated by the phenolsulphonephthalein test.

The disease described differs very essentially from the ordinary types of acute nephritis seen in civil life and among the cases in a general war hospital. The common symptoms of œdema or dyspnœa are almost entirely lacking. Other findings distinguishing it from the ordinary forms of urinary infection are the comparative absence of pus cells in the urine, the absence of leucocytic infiltration about the bladder lesions, and the consistently negative bacteriological findings. In many of its general manifestations the disease resembles trench fever.

The bladder hæmorrhages can not be distinguished at present from those of any other purpuric lesion, but a purpura of such frequent occurrence which, at least in a large proportion of cases, is limited to the urinary tract is sufficiently extraordinary to command attention.

The article is well illustrated and contains elaborately and carefully written protocols.

H. L. KRETSCHMER.

SURGERY OF THE EYE AND EAR

EYE

Francis, L. M.: The Removal of Magnetic Foreign Bodies from the Vitreous. *Arch. Ophth.*, 1920, xlix, 198.

In cases of magnetic foreign bodies in the vitreous Francis examines the eye carefully with the X-ray, making at least three, and possibly four, plates in order to determine not only the position but also the size and shape of the foreign body. Having made this diagnosis, he chooses the route and method of extraction in accordance with the findings. If the foreign body is small and round or nearly round and without jagged edges, he uses the anterior route, attempting to direct the body between the lens and the ciliary muscle and through the pupil into the anterior chamber. An exception are the cases in which the body is so situated that it may become impacted in the ciliary muscle upon exposure to the tractive force of a powerful magnet. In these and all other cases the posterior route is preferred.

In describing his operative procedure Francis emphasizes the necessity for using non-magnetic instruments as it is extremely difficult to control magnetic instruments near the magnet. A good artificial light in the hands of an intelligent assistant is also essential.

When the body in the vitreous is to be extracted by the anterior route the patient is placed before the magnet with the pupil dilated as much as possible and the eye cocainized. He is then brought nearer the magnet and as soon as the foreign body can be seen bulging the iris forward, the direction of the pull of the magnet is immediately made oblique in order that the fragment may be brought through the pupil. After this has been done the patient is removed to the operating table and a keratome is inserted into the cornea perpendicularly, as close to the fragment as possible. The hand magnet is then used and, if necessary, a fine forceps.

For the removal of a foreign body by the posterior route a subconjunctival injection of cocaine and adrenalin is given. The scleral incision is made as near the foreign body as practicable without injury to the ciliary muscle, and the sclera is exposed by a bold stroke of the scissors made in an anteroposterior direction. Each of the two flaps of conjunctival and subconjunctival tissue so formed are caught with a double suture. The sutures are first used as retractors, and after the foreign body has been removed, as tractors, the lips of the scleral wound being approximated by tucking one flap under the other and covering the first with the second. The scleral wound is made in an anteroposterior direction and the magnet presented to the wound. Care is taken to trim off any choroid or vitreous

The after-treatment consists in the administration of 40 gr. daily of sodium salicylate. The sutures are removed in from six to eight days. T. D. ALLEN.

Levin, I.: The Techinque of Radium Application in Cataracts. *Am. J. Roentgenol.*, 1920, n.s. vii, 107.

Levin points out the necessity for distinguishing between the various rays of radium and the importance of filtering out the alpha and soft beta rays because of their irritating effect on the conjunctiva and cornea. The hardest beta and gamma rays have a selective action on abnormal cells and a penetrating action not possessed by the soft rays.

Levin uses about 25 mg. of the element in a brass capsule 1 mm. thick which is covered with black photographic paper to a thickness of 2 cm. and a layer of gauze also 2 cm. thick. This is placed over the closed eyelid for two hours; at first weekly, and later at longer intervals, depending on the progress being made as determined by ophthalmological examinations. As cataract is a slowly developing condition, treatments every two to four months should be continued for at least two years. T. D. ALIEN.

Wiegman, E.: The Technique of Puncture for Glaucoma (Zur technik der Glaukomtrepanation). *Klin. Monatsbl. f. Augenh.*, 1920, lxiv, 117.

On account of the danger of the cystic scar following the Elliot method of puncture, the author has worked out a new method. As in the star operation, but without opening the anterior chamber, he introduces a Graefe knife into the upper edge of the cornea from one limbus to the other so that this intracorneal incision is about 4 mm. long. The knife removes the most superficial layers of the cornea, a small flap of the sclera, and a strip of conjunctiva 4 mm. wide and between 4 and 5 mm. long. After the hæmorrhage has ceased perforation of the sclera and iridectomy are done as usual, whereupon the flap is replaced without suture. After three or four weeks only a faint, scarcely visible depression remains. MEISNER. (Z)

O'Connor, R.: Abducens Palsy; Transplantation of Vertical Recti in Three Cases. *California State J. M.*, 1920, xviii, 90.

Three cases of complete sixth-nerve palsy operated upon successfully by the author are reported. In 1 case the condition was congenital; in 1, it was acquired but operated upon early; and in 1, it was acquired but operated upon late.

O'Connor divided the superior and inferior recti and sutured their lateral halves, into the insertion of the externus. In the first case reported, binocular vision of the second degree was obtained although the patient was 8 years of age. From this

fact the conclusion is drawn "that the muscle action is guided entirely by the fusion sense, irrespective of what individual muscle or nerve is employed to secure the necessary movement," and that the same principle may be applied whenever any of the other recti are paralyzed.

In the literature 10 cases are reported, 7 of complete and 3 of incomplete paralysis. T. D. ALLEN.

Mayou, M. S.: A Method of Iridotomy. *Brit. J. Ophth.*, 1920, iv, 124.

Mayou has used the method he describes, which he states is not original, with considerable success. Two parallel incisions are made in the iris and the underlying capsule with a long, narrow, bent, broad-cutting needle. The needle is passed through the tissues as in a running stitch and its handle then deflected. The band of iris and capsule between the parallel incisions is caught with a Tyrrell hook or iris forceps, drawn through the corneal wound, and cut off with an iris scissors.

One advantage of the operation is that if inflammatory tissue should block the pupil, it can be divided with fine iris scissors and its tension will cause it to spring apart. T. D. ALLEN.

EAR

Shambaugh, G. E.: Clinical Problems Relating to Chronic Suppurative Discharge of the Middle Ear. *Illinois M. J.*, 1920, xxxvii, 203.

The author offers the following conclusions:

1. Chronic suppurative otitis media is a serious disease because of the danger of serious intracranial complications.

2. Many cases of chronic otorrhœa can be cured by conservative local measures.

3. Cases of intractible otorrhœa can usually be cured by radical surgical measures.

4. Radical surgical measures are not indicated in all cases of chronic otorrhœa not cured by local conservative treatment.

5. Cases of chronic suppurative otitis media are of two types: those in which the disease is limited to the mucous membrane lining the middle-ear chambers, and those in which the disease extends to and involves the underlying bone. An intracranial complication is a menace only in the latter type.

6. Cases in which the disease is restricted to the mucous membrane lining the middle-ear chambers call for local conservative treatment only, even though such treatment may not bring about complete cessation of the discharge.

7. Radical surgical measures are indicated only in the relatively few cases in which the process extends to and involves the underlying bone, and not all of these cases justify radical surgical interference.

8. An experienced otologist is now able to differentiate the dangerous chronic otorrhœa from the simple, non-dangerous type. O. M. ROTT.

Rott, O. M.: A Plea for Early Operative Interference in Acute Suppurative Affections of the Mastoid. *Northwest Med.*, 1920, xix, 46.

The author reaches the following conclusions:

1. Frequent bacteriological examination of the secretions from an acute suppurative otitis media should be made.

2. Whenever the streptococcus mucosus capsulatus has been identified as the infecting organism, operative interference should be instituted at once.

3. Every case of acute suppurative mastoiditis not responding to approved medical measures after a period of three weeks is potentially dangerous and should be subjected to operative interference.

4. The virulence of the infecting organism, the patient's resistance, and the anatomical configuration of the mastoid process are always variable factors and therefore preclude an absolute forecast of the outcome of any acute suppurative inflammation of the middle ear.

5. A skillful operation on the mastoid in acute disease is practically without danger to life.

6. Operation is the most rational way of dealing with a suppurative focus that does not respond to approved medical measures after a period of three weeks.

7. Operation removes latent foci of infection which sometimes may remain after prolonged and apparently successful non-operative treatment.

8. Operation permits quick resolution of the inflamed tissues surrounding the essential structures which govern hearing.

Hill, F. T.: The Incomplete Mastoid Operation as a Cause of Delayed Healing. *Laryngoscope*, 1920, xxx, 154.

Delayed healing following an operation for mastoiditis is due to three factors: (1) the patient's lack of resistance; (2) the virulence of the infection; and (3) the incompleteness of the operation. Of these the first is too often blamed instead of the second; the second is more often a genuine cause of delay in healing; and the third by far the most frequent hindrance to cure.

In exenterating mastoid processes four types are found: (1) pneumatic (37 per cent); (2) diploëtic (20 per cent); (3) pneumodiploëtic (42 per cent); and (4) sclerotic (scattering).

Operation upon the pneumatic mastoid is followed by the shortest and smoothest convalescence and the greatest freedom from secondary operation. Of a series of 168 cases in which a simple mastoid operation was performed and the percentages of the different types of mastoid were those given above, a secondary operation was necessary in 16, and of these only 2 were of the distinctly pneumatic type. In other words, only about 3 per cent of the distinctly pneumatic mastoids required a secondary operation. This is explained by the cellular type of the tissue. Each cell operated upon leads to a neighboring cell not operated upon and thus the entire mastoid area is exenterated. To locate

remote cells, however, such as those above the external auditory meatus, in the root of the zygoma, near the temporomandibular articulation, and in the posterior portion of the occiput, the use of the X-ray may be necessary.

As contrasted with about 3 per cent of secondary operations required in cases of distinctly pneumatic mastoids, about ■ per cent of the diploëtic and pneumodiploëtic mastoids required a second operation. This is explained by the fact that the surgeon, feeling that he had arrived at sound bone, did not remove the complete mastoid although in these cases the diploë may contain just as much potential trouble as the cells of the pneumatic type. Hence the author's contention that unless the mastoid is completely cleaned out to its boundaries a secondary operation may be necessary.

Complete exenteration is made difficult in some cases by the presence of bony partitions in the mastoid cavity which simulate the limiting wall of the cavity. The disease process may be carried into hidden areas deep in these partitions by vascular or osteophlebitic extension. Here the X-ray, and especially stereographic plates, may aid in making the operation complete.

The areas neglected in the cases requiring secondary operations in the series reviewed were the zygoma in 4 cases, the posterior meatal area in 2, the tip in 1, the upper angle between the sinus and the floor of the middle fossa in 8, and the area between the sinus and the digastric groove in 9.

After thorough cleaning most of these areas healed rapidly. One case in which there was marked cerebral irritation showed necrotic dura at the angle of the sinus and the floor of the middle fossa. Meningitis and death followed and at the postmortem examination an abscess of the temporosphenoidal lobe was found. Three cases showing perisinus abscess and sinus thrombosis revealed at operation involvement of: (1) the area between the sinus and the floor of the middle fossa; (2) the area between the sinus and the digastric groove; and (3) both of these areas respectively.

A secondary operation was not required in any case in which the mastoid was completely exenterated and care was taken to outline the sinus and the boundaries of the mastoid cavity. It was not considered necessary to uncover the sinus but simply to outline its bony plate. If this were eroded, the course was obvious. In cases so treated the middle ear became dry in from two to five days. The after-treatment seemed of minor importance. The patients were discharged as cured in from four to six weeks. J. D. Cook.

SURGERY OF THE NOSE, THROAT, AND MOUTH

NOSE

Coakley, C. G., and Pearson, W. W.: External Surgery of the Nasal Accessory Sinuses. *Surg., Gynec. & Obst.*, 1920, xxx, 309.

In external surgery of the nasal accessory sinuses, especially of the fronto-ethmoid group, it must be determined which cases should be approached by the external rather than by the intranasal route and which operation will give the most satisfactory end-results.

In the authors' opinion the external operation is indicated for orbital cellulitis, spontaneous fistula from rupture of the anterior or inferior wall of the frontal sinus, new growths within the sinuses, cases in which the symptoms persist in spite of attempts to establish satisfactory intranasal drainage, and cases in which the patient refuses to submit to an intranasal operation.

The operation of choice is the Killian operation or some modification of it. The authors' modification of this procedure, which they have used since 1907, is as follows:

Two incisions are made, one for exposure of the vertical portion of the frontal sinus and the other for exposure of the ethmoid labyrinth. The first incision is begun at the median line and extended in a slightly curved direction parallel with and just above the upper margin of the eyebrow to the very outermost position of the external angular process of the frontal sinus. It is carried directly down to the bone. Above it the periosteum is raised as far as the height of the frontal sinus is indicated in the roentgenogram and peeled downward ⅛ in. This incision makes it possible to remove the entire anterior wall of the frontal sinus and to bevel the upper margin so that no abrupt or rough edge remains for the periosteum to fall over.

The incision for the ethmoid labyrinth is begun ¼ in. outside of the supra-orbital notch and about ¾ in. behind the juncture of the vertical and horizontal portions of the frontal bone. It is carried in a slightly curved direction downward, midway between the inner canthus and dorsum of the nose, to the inferior border of the nasal bone. From it the periosteum is reflected anteriorly and posteriorly and with the periosteum the pulley of the superior oblique is raised. This incision gives ample space for the exenteration of the ethmoid labyrinth, including the sphenoid cavity, and makes it possible to follow up all the ethmoid cells which extend laterally over the roof of the orbit and at the outer angle frequently communicate with the vertical portion of the frontal sinus.

A particular advantage of the double incision is that the wound can be closed without the puckering which so frequently results when the single Killian incision is used. The dressing may be removed from the ethmoid incision on the third day. Pressure is maintained by the bandage over the skin of the frontal sinus so that there is little chance for infection by way of the nasal passages.

O. M. Rott.

Pratt, J. A.: An Ethmoid Operation. *Ann. Otol., Rhinol. & Laryngol.*, 1920, xxviii, 1051.

The author suggests that the term "ethmoid labyrinth" should be used only to designate the cells within an ethmoid capsule, the two capsules being separated from each other by two nasal spaces and the septum and each capsule containing an anterior and posterior set of cells. Each capsule is then bounded orbitally by the lachrymal bone and the ethmoid orbital plate; nasally by the middle turbinate; above by the temporo-orbital plate; and posteriorly by three-fifths of the anterior wall of the sphenoid sinus. The nasal accessory sinuses lie in series antero-posteriorly in the following order: frontal sinus, anterior and posterior ethmoidal cells, and sphenoid sinus, each succeeding structure being a trifle lower in the head than the structure just in front of it. The posterior sphenoidal wall is roughly the same distance from the tip of the nose as a point on the temple midway between the temporo-orbital edge and the external auditory orifice.

The frontal and sphenoidal sinuses are so placed that they can be easily treated surgically after ethmoid exenteration, and if the middle turbinate is intact the cribriform plate outside the ethmoid capsule is protected. The author has not found it necessary to remove any of the middle turbinate either to operate upon the ethmoid or to extend his operation into the sphenoid or frontal sinus. He first corrects thickened or deflected septa which interfere with ethmoid exenteration as he considers them the main cause of sinus trouble. Involvement of the anterior ethmoid cells he generally finds associated with frontal sinusitis, and involvement of the entire ethmoid capsule with inflammation in the sphenoid.

The author's operation requires a nasal speculum, a fenestrated punch forceps with a blade measuring 3 by 5 mm., and a double-end, cup-shaped curette bent to 45 degrees at 2 cm. from one end, the cup of which is also fenestrated.

With the patient sitting up and the head well back after cocainization of the parts the ethmoidal cells are opened just under the anterior end of the middle turbinate. If there is no polypoid or other softening this opening may be made with a chisel or the straight end of the curette. If softening is present

it should be done with the cutting forceps. The tissue is bitten out backward and upward as long as soft bone is encountered, the head being brought forward so that the hard plate of the skull can be followed. Next, all soft cells are removed with the straight end of the curette by a firm but gentle stroke in every direction, the anatomical limits of the ethmoid capsule being borne in mind. Firm, smooth, yielding tissue on the orbital side contraindicates the use of force. The space having been enlarged toward the frontal sinus with the angle end of the curette, the floor of the capsule is cut out back to the sphenoid sinus. The cavity is now cleansed with large swabs used with a whirling movement. Following this, a swab saturated with 3 per cent iodine in glycerin is applied to disinfect and to stop any bleeding. Hæmorrhage, however, is slight as the anterior and posterior ethmoidal and the sphenopalatine arteries are not cut. When the iodine swab is removed any overlooked soft parts are removed with it. A finger-shaped cotton swab is then placed, not packed, in the middle meatus and the patient is instructed to remove it in four hours.

Following the operation the patient should sniff a few drops of "nasal oil" into the meatus three times a day while in the supine position with the head well back. Every third day the surgeon should cocainize, cleanse, and swab the middle meatus with the iodine-glycerin solution.

The operation leaves almost no mark and if the discharge continues may be extended into the sphenoid or frontal sinus. J. D. Cock.

THROAT

Quadri, A.: Papillomata of the Larynx in Children (Papilomas de la laryngе en los niños). *Semana méd.*, 1920, xxvii, 254.

The most common site of papillomata in the larynx is the free border of the vocal cords, but they may occur also on the false cords, the epiglottis, and the arytenoid and subglottic regions. Usually they are found in one of three forms: (1) as small granulations varying in size from that of a grain of rice to that of a lima bean, (2) as tumors the size of a coxcomb, or (3) as a tumor occupying the entire larynx. They are most common in children between the ages of 2 and 8 years.

The chief symptoms are a change in the voice, respiratory noises, and dyspnœa. The voice changes vary from simple hoarseness to complete aphonia according to the location and size of the papilloma. A cough is often present and begins when the papillomatous mass acts as a foreign body in the glottis. In such cases respiration is noisy. The dyspnœa varies according to the volume of the tumor and is induced by a change in position, violent movements, and crying. Symptoms of suffocation are frequent and the suffocation sometimes results in sudden death.

If the presence of a papilloma in the larynx is suspected the child should be taken to a laryngologist. In the cases of some children a laryngeal examination can be made easily, while in the cases of others chloroform must be given. Killian's method of laryngoscopy was employed by the author at first, but he now prefers a modification of it which he calls the "Perez spatula" method. When the diagnosis must be made without the aid of laryngoscopy the condition must be differentiated from tracheobronchial adenopathy, hypertrophied thymus, foreign body in the larynx, congenital laryngeal stridor, and chronic subglottic laryngitis.

The treatment is both medical and surgical. The efficiency of medical treatment alone, however, is very doubtful and usually such treatment should be combined with surgery. Arsenic is the drug most commonly employed and is given in the form of Fowler's solution, sodium arsenate, or cacodylate. Magnesia is also given. In some cases the introduction of radium into the larynx after tracheotomy has been beneficial.

Respiration can be restored to normal quickly only by means of surgery. In urgent cases tracheotomy is performed. The tumor is usually extirpated by the intralaryngeal route, laryngofissure, or laryngotomy. Tracheotomy alone does not effect a cure. Intralaryngeal extirpation by means of the laryngoscope is extremely difficult and therefore usually unsatisfactory in children. Even where there is danger of asphyxia tracheotomy is avoided if possible, the tumor being extirpated rapidly with the Perez spatula. If tracheotomy is necessary, the tumor mass is extirpated at the same time and the cannula withdrawn as soon as possible. In cases of recurrent tumor the growth is extirpated as often as necessary and the base cauterized with lactic or salicylic acid. In cases of tracheal stenosis from vegetations on the laryngeal mucosa, thyrotomy and laryngotomy are done. The use of radium following tracheotomy is recommended. W. R. Meeker.

Davies, B. C.: Thyrotomy in the Removal of a Subglottic Laryngeal Epithelioma. *J. Am. M. Ass.*, 1920, lxxiv, 888.

A median incision was made from the os hyoideum above to the level of the fourth ring. Careful dissection was then done, exposing the thyroid and cricoid cartilages and tracheal rings. Whenever possible, blood vessels were ligated before the cutting was done. This was not always feasible, but the amount of blood lost did not exceed 2 oz. When the field of operation was entirely exposed, the second tracheal ring was incised and a No. 4 tracheotomy tube inserted. At this stage the anæsthetist changed his position and administered the ether by means of a saturated pledget held over the opening of the tube. An attempt was then made to incise the thyroid cartilage by passing a knife through the cricothyroid ligament, but in this particular case ossification had taken place and bone had replaced the cartilage. Several efforts were made with different instruments, the necessity of avoiding injury to the cords being kept in mind. Finally separation of

the lateral halves was effected with a heavy pair of Seiler's turbinal scissors.

Even retraction of the lateral halves gave a good view of the neoplasm which was without a pedicle and situated under the left cord. The growth was incorporated in the body of the cord for its full length, the edges being free. A gauze pack was introduced into the trachea at the cricoid level to prevent leakage of blood from above, as well as to aid the anæsthetist by forcing respiration through the tracheotomy tube. A wide and careful dissection was done. The incision was carried down to the lateral wall of the thyroid and back to the arytenoids. It included the cord with the tumor mass but left a narrow border of the upper portion of the cord. The tissue below the site of the tumor was dissected and the edge then drawn up and sutured to this remaining portion of the cord. In this way a line of articulation for the right cord was afforded. Subsequent events have justified the procedure as the patient's phonation is quite as good as before the operation. The hæmorrhage was very slight, and only three catgut sutures, No. oo, were necessary to close the tumor site.

The tracheotomy pack having been removed, the halves of the thyroid cartilage were brought together and held by chromicized catgut through the perichondrium and surrounding tissue. The skin was closed with silkworm sutures. Over a dry dressing a stiff collar of several layers of adhesive plaster was applied to immobilize the thyroid cartilage. This collar was re-applied after each dressing until union of the halves was secured. The tracheotomy tube was removed on the fourth day and the wound closed in three weeks. O. M. Roit.

Todd, H. C.: Surgery of the Tonsil. *J. Oklahoma State M. Ass.*, 1920, xiii, 100.

In the author's opinion adhesions and contractures following certain tonsil operations are due to: (1) trauma or destruction of the tonsillar plicæ or the tearing of their attachments, or (2) trauma or destruction of the muscles or their aponeuroses which form the tonsillar fossæ.

The plicæ, anterior and posterior, are the superficial layers of the mucous membrane in which the tonsil is developed. The structures deepest in the tonsillar fossæ are the musculature of the tonsillar pillars. The superficial structures are, first, the aponeuroses of these muscles; next, the basement membrane of the mucous membrane enveloping the tonsil; next, the tonsil itself; and then the anterior and posterior plicæ, the layers of the mucosa other than the basement membrane which lie upon the tonsil and partly envelope it. The anterior plica or plica triangularis alone is constant, but both, when present, are continuous at the tonsillar margins with the mucosa of the tonsillar pillars and therefore with the pharyngeal walls.

The author contends that these plicæ must be carefully dissected up rather than torn from the subjacent tonsil. Next, the capsule should be separated from the muscular aponeuroses without injury to the latter or the now loosened plicæ. For this step especially Todd recommends tonsillar scissors or Pierce's sharp spoon dissector. In the next step in the operation the base is detached with the aid of a snare.

When the plicæ are preserved they partially line the emptied fossa without contractures and give off epithelial buds which further hasten a smooth healing. J. D. Cook.

Simpson, J. R., and Noah, H. G.: Report of Two Cases of Lung Abscess Following Tonsillectomy under Local Anæsthesia in Tubercular Subjects. *Pennsylvania M. J.*, 1920, xxiii, 322.

Contrary to the commonly accepted view relative to the causation of lung abscess following tonsillectomy, the authors believe the two cases here reported were due to hæmatogenous infection because of the following facts:

1. Both patients were operated on under local anæsthesia in the upright position.

2. The mouths and throats were in a septic condition before and for some time after the operation.

3. The late development of symptoms (eleven and twelve days after operation) points to a blood-stream infection.

4. The abscess developed at the site of the tuberculous lesion which in both cases was in the upper and middle lobes.

The conclusions drawn are:

1. During or following operation septic material enters the veins, passes through the right heart to the lungs and, in the presence of a tuberculous lesion, finds there suitable soil for the formation of an abscess.

2. The possibility that the aspiration of infected material may be a cause of pulmonary abscess is not to be denied, yet a greater number of such abscesses occur as a result of hæmatogenous infection than is generally supposed. O. M. Rott.

MOUTH

Steadman, F. S.: Dental Sepsis in Children: Its Consequences and Treatment. *Proc. Roy. Soc. Med.*, Lond., 1920, xiii Sect. Odontol., 37.

The author formerly shared the popular opinion that the condition of pale-faced, tired-looking under-weight, and mentally inefficient children was usually the result of semi-starvation due to poverty. He has discovered, however, that in a large percentage of cases carious deciduous teeth and first permanent molars, exposed and putrescent pulps, and abscesses about the teeth are etiological factors and that extraction of the teeth is followed by restoration to health.

One of the chief causes of the deterioration in health is loss of sleep due to the pain associated with the dental condition. Other causes are gastro-intestinal disorders. The rapid clearing up of the latter after the extraction of the teeth is similar to

the improvement noted by Waller in sickly breast-fed babies after the extraction of septic teeth in the mother. Oral sepsis may aggravate existing anæmia, tuberculosis, typhoid, and scarlet fever and may result also in septicæmia and endocarditis. Locally it may spread to adjacent tissues causing pharyngitis, tonsillitis, otitis media, etc. Finally it may be the cause of enlargement of the lymphatics draining the area involved. This clears up if extraction is done early.

The author's treatment consists in the extraction of all deciduous teeth with infected pulps and generally of their antagonists in addition. Permanent molar teeth with roots not fully formed are also extracted. Pulp capping is condemned. The argument that extensive extraction is not advisable as it causes a loss of the power of mastication is futile as this power is already lost before the extraction. No child will masticate on tender teeth and exposed pulps. The argument that extraction prevents the proper growth and development of the jaws is also untenable in the majority of cases. Unilateral mastication should be prevented as it causes a marked gingivitis on the unused side. All condemned teeth should be extracted at one time under a general anæsthetic such as ethyl chloride. LOUIS SCHULTZ.

Burns, R.: Why "Pulling" Teeth Fails; A Plea for Their Surgical Removal When Evulsion of These Organs Is Indicated by Infection. *Dental Cosmos*, 1920, lxii, 371.

The author advocates the surgical removal of teeth whenever evulsion is indicated. The technique of this procedure includes the formation of a triangular flap over the labial or buccal root or roots, the removal of the outer plate of bone, and the lifting of the tooth out of its socket. This is followed by the complete eradication of the entire infected area and, when a number of teeth are removed, by the removal of the alveolar septa and the trimming and smoothing of the bone. The wound is closed by suturing the flap into place.

Teeth which should be removed are devitalized teeth, abscessed teeth, teeth badly infected with pyorrhœa, and pulpless teeth. The removal of pulpless teeth is indicated on account of the uncertainty of root canal treatment, the probability that the dentin in such teeth will become infected, and the pathologic changes which are found so frequently in the peridental membrane surrounding them. Mere extraction of such teeth is insufficient as the coexisting pathology cannot be successfully eradicated in this manner. LOUIS SCHULTZ.

BIBLIOGRAPHY *of* CURRENT LITERATURE

GENERAL SURGERY—SURGICAL TECHNIQUE

NOTE.—The bold face figures in brackets at the right of a reference indicate the page of this issue on which an abstract of the article referred to may be found.

Operative Surgery and Technique

Surgical cases treated by medical methods. W. M. CROFTON. Med. Press, 1920, n. s. cxix, 171.

A method of suture. A. C. F. HALFORD. Med. J. Australia, 1920, i, 229.

The therapeutic use of carbon dioxide after anæsthesia and operation. Y. HENDERON; H. HAGGARD, and R. C. COBURN. J. Am. M. Ass., 1920, lxxiv, 783. [1]

The treatment of postoperative tetany in man by the transplantation of parathyroid glands. F. LANDOIS. Zentralbl. f. Chir., 1920, xlvii, 74. [1]

Localization of a foreign body. W. COTTON. Brit. M. J., 1920, i, 227.

The practical significance of attention to detail in abdominal operations. A. E. MAYLARD. Glasgow M. J., 1920, n. s., xi, 97.

The protection of the skin from pus, urine, fæces, chemicals, or other irritating material by the use of sheet rubber adherent to the skin. A. L. SORESI. Surg., Gynec. & Obst., 1920, xxx, 306.

Buried chromic catgut sutures acting as recurrent abscesses thirty years after their insertion. J. M. ELDER. Canadian M. Ass. J., 1920, x, 273.

Postoperative intra-abdominal adhesion—some causes and means of prevention. A. E. BENJAMIN. J. Lancet, 1920, n. s. xl, 149. [2]

Aseptic and Antiseptic Surgery

A chemical and clinical study of chlorlyptus, a new chlorinated antiseptic. P. B. HAWK, J. C. DACOSTA, C. A. SMITH and others. Therap. Gaz., 1920, n. s. xxxvi, 156. [2]

The treatment of infected wounds with reference to the Carrel-Dakin method. W. FULLER. Illinois M. J., 1920, xxxvii, 173.

Anæsthesia

Chorea and its relation to the eyes. F. J. NEWBERRY. Pacific Coast J. Homœop., 1920, xxxi, 87.

Anæsthesia in cerebral and spinal surgery. A. M. PALERMO. Med. Rec., 1920, xcvii, 231. [2]

Surgical anæsthetics in diabetes mellitus. R. FITZ. Med. Clin. N. Am., 1920, iii, 1107. [2]

The anæsthetic problem in lung surgery. J. T. GWATHMEY. Rhode Island M. J., 1920, iii, 41. [3]

Intratracheal insufflation of chloroform. A report of 357 cases. C. H. MOTT. Proc. Roy. Soc. Med., Lond., 1920, xiii, Sect. Anæs., 25. [3]

Transfusion of blood in cases of hæmorrhage. J. M. GRAHAM. Edinburgh M. J., 1920, n.s. xxiv, 142.

Surgical Instruments and Apparatus

Blood-transfusion apparatus. L. L. STANLEY. J. Am. M. Ass., 1920, lxxiv, 871. [4]

An improved needle for sinus therapy. A. GOLDBLOOM. Am. J. Dis. Child., 1920, xix, 229.

Retention apparatus after harelip operations. T. DUNHAM. Ann. Surg., 1920, lxxi, 395.

Tonsil bayonet for opening peritonsillar abscesses. A. S. GILLETT. Lancet, 1920, cxcviii, 556.

A suspended stretcher designed for the carriage of badly wounded and fracture cases by motor ambulance. A. H. COLEMAN. J. Roy. Army Med. Corps, Lond., 1920, xxxiv, 254.

Device for maintaining apposition in fractures. J. F. SMITH. Surg., Gynec. & Obst., 1920, xxx, 319.

A new sling for Colles' fracture. A. H. TODD. Lancet, 1920, cxcviii, 556.

A screw tractor for use with Thomas' splint. R. M. YERGASON. J. Am. M. Ass., 1920, lxxiv, 886.

Presentation of device for holding urethral catheters. C. S. LEVY. J. Urol., 1920, iv, 107.

SURGERY OF THE HEAD AND NECK

Head

Fluoroscopic examination in injuries to the head. M. W. CLIFT. Am. J. Roentgenol., 1920, n.s. vii, 137. [4]

Intracranial pressure. C. C. ROGERS. Surg., Gynec. & Obst., 1920, xxx, 291.

Cerebral cysticercus. J. SANTA CECILA. Arch. brasil. de med., 1919, ix, 881.

The association of fever with fracture of the skull. A. O. WILENSKY. Am. J. M. Sc., 1920, clix, 402. [5]

Investigations regarding the earliest degenerative changes in traumatic lesions of the cerebrum. M. URRUA. Med. Ibera, 1920, x, 65. [6]

Brain abscess complicating a local cranial infection. W. SHARPE. Surg., Gynec. & Obst., 1920, xxx, 312.

Sincipital meningocele and congenital hæmatocele of the superior longitudinal sinus. GOYANES. Siglo méd., 1920, lxvii, 141.

Some remarks on sinus thrombosis in children. S. OPPENHEIMER. Arch. Pediat., 1920, xxxvii, 65. [7]

Observations on war surgery of the face and jaws. V. H. KAZANJIAN. Dental Cosmos, 1920, lxii, 283.

A case of reconstructive surgery of the face. T. G. MAGHEE. Colorado Med., 1920, xvii, 60.

Squamous-cell epithelioma of the lip: a study of 537 cases. A. C. BRODERS. J. Am. M. Ass., 1920, lxxiv, 656. [7]

Use of free skin grafts to replace loss of mucous membrane of mouth and nose. G. M. DORRANCE. Ann. Surg., 1920, lxxi, 360.

Congenital harelip and cleft palate. C. L. STRAITH. J. Michigan State M. Soc., 1920, xix, 122.

Fractures of the jaw. C. W. HARNED. Med. Times, 1920, xlviii, 56.

Treatment of fracture of the mandible. W. GUY. Edinburgh M. J., 1920, n.s. xxiv, 138.

The treatment of war fractures of the mandible. J. L. DE LA PRESA Y VASQUEZ. Rev. españ. de cirug., 1919, i, 723. [8]

The operative treatment of ununited fractures of the mandible. R. H. IVY. Ann. Surg., 1920, lxxi, 363. [8]

Extensive destruction of the sella turcica without clinical symptoms. L. B. GROESCHEL. N. York M. J., 1920, cxi, 534.

A case of pituitary tumor showing very great improvement after operation. H. L. WHALE. Proc. Roy. Soc. Med., Lond., 1920, xiii, Clin. Sect., 29.

A case of traumatic lesion of the spinal medulla. T. RALLO. Rev. españ. de cirug., 1919, i, 713.

Cervical rib. C. A. GOUSLAY. Indian M. Gaz., 1920, lv., 100.

Neck

Structure of the thyroid and its qualitative variations: a review. V. M. BUSCAINE and G. VERCELLINI. Endocrinology, 1920, iv, 88.

Calcification of the thyroid gland. J. J. CLARK. South. M. J., 1920, xiii, 183.

Papilliferous carcinoma of the thyroid gland. B. HUGHES. Brit. M. J., 1920, i, 362.

Goiter. J. C. O'DAY. N. York M. J., 1920, cxi, 503.

Goiter. A. B. COOK. California State J. M., 1920, xviii, 82.

What is the cause of goiter? J. C. O'DAY. N. York M. J., 1920, cxi, 556.

Goiter—Observations on approximately 1,500 cases. S. O. BLACK. Charlotte M. J., 1920, lxxxi 96.

The early diagnosis of malignant thyroid—especially carcinoma. H. A. H. BOUMAN. Minnesota Med., 1920, iii, 105. [8]

Cutaneous manifestations in a case of cervical fistula. A. EDDOWES. Brit. M. J., 1920, i, 326.

A case of jugular phlebitis, sinus thrombosis, ulcerative endocarditis. W. S. LAURIE. Med. J. Australia, 1920, i, 234.

SURGERY OF THE CHEST

Chest Wall and Breast

A new operation for pyothorax; the trephine operation. A. C. STRACHAUER. Minnesota Med., 1920, iii, 127. [9]

Excision of the body of the scapula for sarcoma. J. ERDMANN. Ann. Surg., 1920, lxxi, 338.

Empyema: recent experiences. F. K. BOLAND. South. M. J., 1920, xiii, 198.

The treatment of empyema. D. EVE. South. M. J., 1920, xiii, 190.

The surgical treatment of empyema. W. W. GRANT. South. M. J., 1920, xiii, 195.

The treatment of empyema by a closed method. F. M. MANSON. Minnesota Med., 1920, iii, 124. [9]

The treatment of empyema in lobar pneumonia by early aspiration. T. MCCRAE. Canadian Med. Ass. J., 1920, x, 162.

Pleural effusion; its cytology and the results of paracentesis. D. S. PAGE. Lancet, 1920, cxcviii, 585.

Pleural effusion with inversion of the diaphragm producing an abdominal tumor: together with remarks on acute pulmonary œdema following tapping. D. RIESMAN. Am. J. M. Sc., 1920, clix, 353. [10]

A case of endothelioma of the pleura with multiple metastases. A. VALLEE. Canadian M. Ass. J., 1920, x, 268.

The modern conception of chronic mastitis. H. C. R. DARLING. Med. J. Australia, 1920, i, 166.

Operative results in 200 breast tumors. B. B. DAVIS. Ann. Surg., 1920, lxxi, 270.

The end results of the treatment of cancer of the breast before and after the introduction of prophylactic X-ray treatment. G. PERTHES. Zentralbl. f. Chir., 1920, xlvii, 125. [10]

Gumma of the breast: report of a probable case. L. THOMPSON. J. Am. M. Ass., 1920, lxxiv, 791.

Case of diffuse hypertrophy of the breasts. B. S. SIMPSON. Edinburgh M. J., 1920, xxiv, 196.

Umbilical hernia. N. A. LUDINGTON. N. York M. J., 1920, cxi, 540.

Trachea and Lungs

The physical signs of foreign bodies in the bronchi. T. MCCRAE. Am. J. M. Sc., 1920, clix, 313. [10]

Experimental pneumectomy. G. J. HEUER and G. R. DUNN. Bull. Johns Hopkins Hosp., 1920, xxxi, 31. [11]

Malignant disease of the lung. E. H. FUNK. Med. Clin. N. Am., 1920, iii, 1197.

A case of malignant (carcinomatous) pericarditis. J. B. CLELAND and A. PALMER. Med. J. Australia, 1920, i, 233.

Pharynx and Œsophagus

A case of communication of the œsophagus with the pleura. A. M. ARQUELLADA. Med. Idera, 1920, x, 77.

Stricture of the œsophagus and its treatment. C. G. LUCAS. Mississippi Valley M. J., 1920, xxvii, 56.

Dilatation of the œsophagus without organic obstruction. W. YOUNG. Med. Press, 1920, cxix, 258.

A causative factor of cancer of the œsophagus. R. A. BULLRICH. Semana méd., 1920, xxvii, 15. [12]

A case of hydrochloric acid poisoning with sloughing of part of the œsophagus. J. B. CLELAND. Med. J. Australia, 1920, i, 170.

Miscellaneous

Gunshot wounds of the chest. R. H. FOWLER and H. P. MENCKEN. Ann. Surg., 1920, lxxi, 257.

War wounds of the chest. C. G. HEYD. Ann. Surg., 1920, lxxi, 246.

Application to civil practice of therapeutic principles established in treating war injuries to the thorax. J. L. YATES. Wisconsin M. J., 1920, xviii, 414.

Possible advances in civil medicine suggested by experiences in treating war injuries of the chest. J. L. YATES. Ann. Surg., 1920, lxxi, 241.

Surgery of the ductus communis choledochus. J. C. O'DAY. Ann. Surg., 1920, lxxi, 293.

SURGERY OF THE ABDOMEN

Abdominal Wall and Peritoneum

The cause and treatment of abdominal hernia. W. B. COSENS. Practitioner, 1920, civ, 220. [12]

A case of incarcerated hernia into the umbilical cord. W. J. STANTON. J. Am. M. Ass., 1920, lxxiv, 803.

The radical cure of femoral herniæ by the inguinal route. H. L. NORTHROP. Hahneman. Month., 1920, lv, 187. [12]

The inguinal route in femoral herniotomy. D. EISENDRATH. Surg. Clin. Chicago, 1920 iv, 49. [13]

An operation for radical cure of femoral hernia. B. B. CATES. Am. J. Surg., 1920, xxxiv, 90. [14]

The mechanism of the peritoneal absorption of certain solids. J. DUTREY. Semana m'd., 1920, xxvii, 249. [14]

Treatment of tuberculous peritonitis by heliotherapy. R. IRIBARNE. Semana méd., 1920, xxvii, 279.

Gastro-Intestinal Tract

Gastric ulcer treated by nerve blocking. E. A. Parker. N. York M. J., 1920, cxi, 418.

Late results of the surgical treatment of chronic ulcers of the stomach and duodenum. J. SHERREN. Lancet, 1920, cxcviii, 691.

Specimens from four cases of punctate ulceration of the stomach in infants. E. PRITCHARD and W. T. HILLIER. Proc. Roy. Soc. Med., Lond., 1920, xiii, Sect. Dis. Child., 33.

Polypoid adenoma of the stomach: removal by gastrotomy. E. NOVAK. J. Am. M. Ass., 1920, lxxiv, 871. [14]

Carcinoma of the stomach. R. P. ROWLANDS. Guy's Hosp. Gaz., 1920, xxxiv, 87.

Chylous ascites due to carcinoma of the stomach. H. V. HENDRICKS. J. Am. M. Ass., 1920, lxxiv, 869.

The treatment of habitual vomiting and of congenital pyloric stenosis. MARFAN. Am. J. Clin. M., 1920, xxvii, 157.

Specimens from a case of hypertrophic pyloric stenosis with associated hypertrophies. E. PRITCHARD and W. T. HILLIER. Proc. Roy. Soc. Med., Lond., 1920, xiii, Sect. Dis. Child., 33.

Pyloric stenosis of infancy. F. W. STOCKTON. Canadian M. Ass. J., 1920, x, 230.

Hypertrophic stenosis of the pylorus in infancy. G. A. Wall. J. Oklahoma State M. Ass., 1920, xiii, 87.

Intestinal obstruction. J. W. BURNS. Texas State J. M., 1920, xv, 397.

Report of a case of intussusception. L. H. FLINN. Wisconsin M. J., 1920, xviii, 426.

Chronic intussusception with polypus. L. G. PINAULT. Canadian M. Ass. J., 1920, x, 265.

Intestinal obstruction with report of cases. R. L. RAMEY. Texas State J. M., 1920, xv, 400.

Irreducible intussusception in children: a successful case of resection with lateral anastomosis. N. J. DUNLOP. Med. J. Australia, 1920, i, 213.

A case of intussusception with gangrenous appendix in an eight months' old baby. R. K. BUFORD. Med. Press, 1920, n. s. cxix, 196.

A case of intussusception caused by papilloma at the ileocæcal valve. C. F. CUTHBERT. Proc. Roy. Soc. Med., Lond., 1920, xiii, Clin. Sect. 32.

Diverticulitis: report of a case with acute perforation. C. F. BALL. J. Am. M. Ass., 1920, lxxiv, 722.

A permanent colostomy or enterostomy which may be closed by an extraperitoneal operation. R. C. COFFEY. Ann. Surg., 1920, lxxi, 299. [15]

Gastro-enterostomy still the treatment for chronic gastric and duodenal ulcers. R. C. COFFEY. Ann. Surg., 1920, lxxi, 303. [15]

Chronic duodenal dilatation, its concomitant and sequential pathology. H. CROUSE. Texas State J. M., 1920, xv, 394.

Duodenal perforation (fistula) treated by duodenal (jejunal) alimentation; another case. M. EINHORN. J. Am. M. Ass., 1920, lxxiv, 790.

Three cases of acute perforation of duodenal ulcer; laparotomy; recovery. E. HUNTLEY. Brit. M. J., 1920, i, 362.

Simple ulcer of the jejunum and ileum. N. Leotta. Arch. ital. de chirurg., 1919, i, 349. [15]

The treatment of ileac volvulus. V. PAUCHET. J. de m'd. de Par., 1920, vi.

Chronic appendicitis. J. B. DEAVER. Med. Clin. N. Am., 1920, iii, 1167.

Chronic appendicitis; a study of postoperative end results. E. M. STANTON. N. York M. J., 1920, xx, 66.

Chronic appendicitis in children with report of cases. NEWTON. South. M. J., 1920, xiii, 166.

Appendicitis without protective stiffening of the abdominal wall. J. D. MALCOLM. Brit. M. J., 1920, i, 432.

Appendicitis in the Argonne. E. ELIOT, JR. N. York M. J., 1920, cxi, 487.

Appendicitis sometimes a gynecological disease. C. E. CANTRELL. Texas State J. M., 1920, xv, 393.

Torsion of the appendix. E. C. BEVERS. Lancet, 1920, cxcviii, 597.

A case of an appendix containing 36 shot; followed by signs of malignant endocarditis. C. F. CUTHBERT. Proc. Roy. Soc. Med., Lond., 1920, Clin. Sect., 34.

Technique of appendectomy. A. L. SORESI. Ann. Surg., 1920, lxxi, 315. [16]

Appendectomy under hyoscine-morphine-cactoid and procaine anæsthesia. ANDERSON. Am. J. Clin. M., 1920, xxvii, 171.

The clinical application of the Carrel-Dakin method to cases of acute appendicitis requiring drainage. E. T. RULISON. Surg., Gynec. & Obst., 1920, xxx, 294. [16]

Mikulicz operation for carcinoma of the sigmoid. S. ERDMAN. Ann. Surg., 1920, xxi, 388.

Torsion of the omentum; report of a case and a brief review of the literature. F. B. BLOCK and H. J. DARMSTADTER. J. Am. M. Ass., 1920, lxxiv, 881.

The surgical aspects of dysentery. Z. COPE. Lancet, 1920, cxcviii, 579. [16]

The diagnosis of anorectal diseases. A. J. ZOBEL. Am. J. Surg., 1920, xxxiv, 34.

Methods of examination in diseases of the rectum and sigmoid colon. T. C. HILL. Am. J. Surg., 1920, xxxiv, 17.

Foreign body in the rectum. P. JAUREGUI. Semana méd., 1920, xxviii, 279.

Stricture of the rectum. J. D. REEDER. Am. J. Surg., 1920, xxxiv, 49. [17]

Anatomical considerations in the rectal prolapse of infants. T. W. TODD. Ann. Surg., 1920, lxxi, 163. [18]

Catarrhal proctitis. M. L. BODKIN. Am. J. Surg., 1920, xxxiv, 44.

Syphilis, tuberculosis, and cancer of the rectum. G. M. LINTHICUM. Am. J. Surg., 1920, xxxiv, 47.

Traumatic ulcer of the rectum with symptoms simulating sacro-iliac affection. A case report. H. GOLDMAN. Am. J. Surg., 1920, xxxiv, 62.

A successful hæmorrhoid operation under local anæsthesia. L. J. HIRSCHMAN. Am. J. Surg., 1920, xxxiv, 58. [18]

Notes on rectal surgery. 1. Fæcal control after amputation of the rectum and colostomy. 2. Helpful expedient in fistula operations. 3. A technique of hæmorrhoidectomy. W. M. BRICKNER. Am. J. Surg., 1920, xxxiv, 23.

Aseptic amputation of the rectum. E. BEER. Am. J. Surg., 1920, xxxiv, 53. [18]

Papillitis (hypertrophied anal papillæ). S. G. GANT. Am. J. Surg., 1920, xxxiv, 25.

Fistula in ano. S. T. EARLE. Am. J. Surg., 1920, xxxiv, 38.

Tuberculous fistula in ano. W. H. KIGER. Am. J. Surg., 1920, xxxiv, 40. [18]

Fissure in ano or irritable ulcer of the anus. L. H. ADLER, JR. Am. J. Surg., 1920, xxxiv, 41.

Perianal infection. D. A. KRAKER. Am. J. Surg., 1920, xxxiv, 56.

Fæcal incontinence. C. J. DRUECK. Am. J. Surg., 1920, xxxiv, 20.

Liver, Gall-Bladder, Pancreas, and Spleen

A case of rupture of the liver with recovery. L. DOYLE. Med. Press, 1920, n. s. cxix, 176.

Pathological changes in the gasteropod liver produced by fluke infection. E. C. FAUST. Bull. Johns Hopkins Hosp., 1920, xxxi 79.

The gall-bladder from the surgeon's standpoint. O. J. FAY. J. Iowa State M. Soc., 1920, x, 63.

Analysis of diseases of the gall-bladder and ducts. M. E. REHFUSS. Med. Clin. N. Am., 1920, iii, 1223. [19]

Some aspects of the diagnosis and treatment of cholecystitis and cholelithiasis. B. B. V. LYON. Med. Clin. N. Am., 1920, iii, 1253. [20]

My first 100 gall-bladder operations in my own clinic. W. F. GRINSTEAD. Illinois M. J., 1920, xxxvii, 156.

Calculous cholecystitis, hepatic abscess without icterus, and laparotomy without suture. E. SLOCKER. Siglo méd., 1920, lxvii, 121.

Dyspeptic and other referred symptoms associated with disease of the gall-bladder and of the appendix. H. ROLLESTON. Brit. M. J., 1920, i, 317.

Chronic jaundice; congenital defect of the bile-ducts. E. CAUTLEY. Proc. Roy. Soc. Med., Lond., 1920, xiii, Sect. Dis. Child., 31.

The partial pancreatectomy; investigations regarding experimental chronic pancreatic diabetes. E. LANGFELDT. Acta med. Scand., 1920, liii, 1. [21]

Miscellaneous

The relation of the development of the gastro-intestinal tract to abdominal surgery. W. J. MAYO. J. Am. M. Ass., 1920, lxxiv, 367. [23]

Abdominal emergencies. R. MORISON. Brit. M. J., 1920, i, 425.

Acute abdominal conditions. J. B. DEAVER. N. York M. J., 1920, cxi, 445.

Injury of the abdominal viscera without visible external signs. C. C. NASH. Texas State J. M., 1920, xv, 401.

Diaphragmatic hernia. T. F. RIGGS. Ann. Surg., 1920, lxxi, 276.

Diaphragmatic hernia. A. S. MACMILLAN. Am. J. Roentgenol., 1920, n. s. vii, 143. [23]

An unusual case of retroperitoneal congenital cyst probably arising from the Wolffian body. J. M. ELDER. Canadian M. Ass. J., 1920, x, 272. [24]

Retroperitoneal liposarcoma: report of an unusually large specimen, with chemical analysis. E. F. HIRSCH. Am. J. M. Sc., 1920, clix, 356. [24]

Congenital diaphragmatic hernia. L. FRANK. Ann. Surg., 1920, lxxi, 280.

Mesenteric or enterogenous cyst. C. S. WHITE. J. Am. M. Ass., 1920, lxxiv, 440. [24]

SURGERY OF THE EXTREMITIES

Diseases of the Bones, Joints, Muscles, Tendons, Etc.

Osteogenesis imperfecta congenita. H. M. MCCLANAHAN and W. W. WILLARD. Am. J. Dis. Child., 1920, xix, 181.

Spontaneous fractures in the starvation osteopathies of youth. W. V. SIMON. Arch. f. Orthop., 1920, xvii, 364.

A case of osteitis fibrosa. N. C. LAKE and N. H. SCHUSTER. Lancet, 1920, cxcviii, 546.

Foreign bodies in the bone and soft tissues. A. N. COLLINS. J.-Lancet, 1920, n. s. xl, 121.

A case of hydatid infestation of bone with multilocular hydatid disease. C. E. CORLETTE. Lancet, 1920, cxcviii, 311. [24]

Chondrodysplasia: multiple cartilaginous exostoses. H. L. DWYER. Am. J. Dis. Child., 1920, xix, 189. [25]

Articular wounds, with review of five cases. E. STINCER. Rev. de med. y cirug. de la Habana, 1920, xxv, 61.

Polydactylism and the phenomenon of regeneration. G. F. ARPS. J. Am. M. Ass., 1920, lxxiv, 873.

Isolated disease of the scaphoid bone. E. A. COCKAYNE. Proc. Roy. Soc. Med., Lond., 1920, xiii, Sect. Dis. Child., 41.

The establishment of the collateral vascular system in the limbs. G. BOLOGNESI. Chir. d. organi di movimento, 1919, iii, 413. [25]

Acute osteomyelitis and periosteitis complicating epidemic influenza; report of five cases; radius removed in one case; review of the literature of excision of the radius. M. BEHREND. Surg., Gynec. & Obst., 1920, xxx, 273. [25]

The treatment of crushed extremities. W. L. ESTES. Am. J. Surg., 1920, xxxiv, 69.

Trophic changes in stumps of the lower limbs. F. DELITALA. Chir. d. organi d. movimento, 1919, iii, 535. [26]

Case of bony ankylosis of the knee; fixed at right angle; gonococcus or some other form of arthritis. C. F. CUTHBERT. Proc. Roy. Soc. Med., Lond., 1920, xiii, Clin. Sect. 33.

Case of cornua cutanea of the feet. A. M. H. GRAY. Proc. Roy. Soc. Med., Lond., 1920, xiii, Sect. Dermat. 57.

Bony changes in the feet following fracture of the vertebræ. L. BRYAN. Am. J. Roentgenol., 1920, n. s. vii, 125.

Feet and arches, tetralogy of conditions, ailments, and distortions for diagnosis records. C. CROSS. Am. J. Surg., 1920, xxxiv, 74.

Fractures and Dislocations

Spontaneous fractures in the starvation osteopathies of youth. W. V. SIMON. Arch. f. Orthop., 1920, xvii, 364. [26]

The various methods of treating fractures. C. E. BENEFIELD. J. Arkansas M. Soc., 1920, xvi, 193.

The conservative treatment of compound fractures. G. BENET. J. South Carolina M. Ass., 1920, xvi, 62.

Open treatment of fractures. I. A. ARNOLD. Am. J. Surg., 1020. xxxiv, 87. [26]

A substitute for open operation in irreducible fractures. J. S. WELCH. J. Am. M. Ass., 1920, lxxiv 801.

The use of autogenous bone grafts in the treatment of certain simple fractures of bone. B. HUGHES. Lancet, 1920, cxcviii, 595. [27]

The Lane plate in treating an infected fracture. J. M. DODD. Wisconsin M. J., 1920, xviii, 425.

Treatment of tuberculous osteo-arthritis by bone grafts. R. LAVALLE. Surg., Gynec. & Obst., 1920, xxx, 239.

Plaster casts in the treatment of fractures of the extremities. C. CALDERON. Med. Ibera, 1920, x, 41.

Fractures of the pelvis. W. J. RYAN. Ann. Surg., 1920, lxxi, 347.

Dislocation of the shoulder joint and its treatment. A. H. TODD. Practitioner, 1920, cix, 186. [27]

Two cases of displacement of the ilium. E. F. CYRIAX. N. York M. J., 1920, cxi, 546.

Peritrochanteric fracture of the femur. A. O. WILENSKY. Surg., Gynec. & Obst., 1920, xxx, 244.

The treatment of fresh and ununited fractures of the femoral neck. E. JONES. California State J. M., 1920. xviii, 92. [28]

Some fractures of the patella. and how shall we treat them? W. R. HEWITT. J. Missouri State M. Ass., 1920, xvii, 100.

Case of dislocation of the patella. R. P. ROWLANDS. Proc. Roy. Soc. Med., Lond., 1920, xiii, Clin. Sect., 26.

Fractures of the tibia and fibula; their treatment by plating operations. C. F. STRANGE. Lancet, 1920, cxcviii, 537. [28]

Surgery of the Bones, Joints, Muscles, Tendons, Etc.

Bone inlays and platings. R. J. BEHAN. Ann. Surg., 1920, lxxi, 377.

The use of beef-bone screws in fractures and bone transplantation. M. S. HENDERSON. J. Am. M. Ass., 1920, lxxiv, 715. [29]

Further observations on a new method for the immediate sterilization and closure of chronic infected wounds of bones and soft tissues. W. W. BABCOCK. Am. J. Surg., 1920, xxxiv, 81. [29]

The Sladimiroff-Mikulicz operation. M. H. VEGAS. N. York M. J., 1920, cxi, 550.

A modified Agnew's operation for the relief of web-finger produced by rope burns. E. D. TWYMAN. J. Missouri State M. Ass., 1920, xvii, 112.

Operation for paralytic valgus. S. KLEINBERG. J. Orthop. Surg., 1920, n. s. ii, 127.

Amputation of the hip joint with removal of the whole bone, and flaps amputated just above the knee. G. TORRANCE. Surg., Gynec. & Obst., 1920, xxx, 308.

Orthopedics in General

Treatment of denervated muscle. F. A. HARTMAN and W. E. BLATZ. J. Am. M. Ass., 1920, lxxiv, 878.

Personal observations of the early, intermediate, and late treatment of 1,000 cases of infantile paralysis from the orthopedic surgeon's viewpoint. A. MYERS. Charlotte M. J., 1920, lxxxi, 95. [30]

SURGERY OF THE SPINAL COLUMN AND CORD

Treatment of back injuries with reference to spinal fractures not associated with cord symptoms. H. W. MARSHALL. Boston M. & S. J., 1920, clxxxii, 140. [30]

The modern treatment of tuberculosis of the spine. A. R. SHORT. Bristol M.-Chir. J., 1920, xxxvii, 19.

Decompression of the spinal cord in tuberculosis of the spinal column. F. C. FLOECKINGER. Am. J. Surg., 1920, xxxiv, 83.

Concerning spinal cord tumors and their surgical treatment. C. A. ELSBERG. Am. J. M. Sc., 1920, clix, 194. [30]

A case of tumor of the sacrum. J. E. GOLDTHWAIT. Boston M. & S. J., 1920, clxxxii, 301.

Fistulæ and sacrococcygeal cysts. A. ZENO and A. BODEN. Semana méd., 1920, xxvii, 181. [31]

SURGERY OF THE NERVOUS SYSTEM

Recent developments in peripheral nerve surgery. H. A. BEAM. Illinois M. J., 1920, xxxvii, 189.

Diagnosis and treatment of peripheral nerve injuries. F. C. KIDNER. J. Michigan State M. Soc., 1920, xix, 116.

MISCELLANEOUS

Clinical Entities—General Physiological Conditions

A case of multiple congenital anomalies of development. S. A. K. WILSON. Proc. Roy. Soc. Med., Lond., 1920, xiii, Clin. Sect., 32.

Vertigo, especially in respect to its surgical and medical treatment. S. SCOTT. Lancet, 1920, cxcviii, 535.

Wound shock. F. S. BAIRD. J. Michigan State M. Soc., 1920, xix, 107.

Variations in the traumatic rupture of the viscera. A. KROGIUS. Acta chirurg. Scand., 1920, lii, 209.

The clinical picture of starvation osteopathy. O. HAMEL. Deutsche med. Wchnschr., 1920, iii, 68. [3]

Starvation bone disease in Munich. HEYER. München. med. Wchnschr., 1920, lxvii, 98. [31]

A consideration of the surgical hazards in diabetic patients. N. B. FOSTER. Ann. Surg., 1920, lxxi, 382.

Tuberculin in surgical lesions. O. COPELLO. Semana méd., 1920, xxvii, 253.

Tuberculosis of ovarian cysts. E. FORGUE and E. CHAUVIN. Rev. de chir., Par. 1919, lvii, 881. [31]

A case of superficial "card-like" rodent ulcer. E. G. LITTLE. Proc. Roy. Soc. Med., Lond., 1920, xiii, Sect. Dermat., 29.

A case of multiple rodent ulcer. A. SAVILL. Proc. Roy. Soc. Med., Lond., 1920, xiii, Clin. Sect., 54.

A case of rodent ulcer treated by radium. R. H. BROWNE-CARTHEW. Proc. Roy. Soc. Med., Lond., 1920, xiii, Clin. Sect. 31.

Hæmangioma group of endothelioblastomata. J. FRASER. Brit. J. Surg., 1920, vii, 335. [32]

A case of superficial epithelioma. H. C. SEMON. Proc. Roy. Soc. Med., Lond., 1920, xiii, Sect. Dermat., 38.

Investigations regarding the etiology and biology of tumors; condyloma acuminatum, verruca vulgaris, cholesteatoma. E. SAUL. Zentralbl. f. Bakteriol., 1920, lxxxiv, 20. [33]

Camphor-oil tumors. W. H. MOORE and W. G. WANDER. Arch. Dermat. & Syph., 1920, n. s. i, 304. [33]

The cancer question. J. G. R. MANWARING. J. Michigan State M. Soc., 1920, xix, 110.

The cancer problem. A contribution toward its solution. E. H. KING. Med. Record., 1920, cxi, 444.

The control of cancer. P. HILLKOWITZ. Colorado Med., 1920, xvii, 56.

Malignancy and radiation; a study of the relation of the structure of cancer tissue to radiation. F. BRYANT. Boston M. & S. J., 1920, clxxxii, 263. [34]

Early symptoms of cancer. J. C. BLOODGOOD. Illinois M. J., 1920, xxxvii, 155.

The solar keratoses and cutaneous cancer. JAMES N. MCCOY. Arch. Dermat. & Syph., 1920, n. s. i, 175. [34]

A determining factor of cancer of the œsophagus. R. A. BULLRICH. Semana m'd., 1919, xxvii, 15.

Cancer death rate in New York City during 1919. L. D. BULKLEY and L. B. CADY. Med. Record., 1920, cxi, 486. [38]

Report of two cases of idiopathic hæmorrhagic sarcoma (Kaposi); the first complicated with lymphatic leukæmia. H. N. COLE and E. S. CRUMP. Arch. Dermat. & Syph., 1920, n. s. i, 283.

The treatment of cancer, particularly of the tongue, tonsil, and rectum by buried emanation. H. H. JANEway. Am. J. Roentgenol., 1920, n. s. vii, 92.

Hemiplegia—spontaneous and traumatic. W. D. WISE. Mod. Med., 1920, ii, 200.

The etiology, treatment, and results of cholesteatoma. J. M. SMITH. N. York M. J., 1920, cxi, 495. [35]

Blood

A new method for blood transfusion. G. I. MILLER. N. York M. J., 1920, cxi, 460.

Blood transfusion in modern therapeutics. G. I. MILLER. N. York M. J., 1920, cxi, 492.

Transfusion of "antibacterial blood"; report of a case. G. F. LITTLE. J. Am. M. Ass., 1920, lxxiv, 734.

A new method of phagocytosis test with the blood plasma; a specific immunological reaction. M. OTANI. Med. Record, 1920, xcvii, 439. [35]

Coagulation in embryonic blood. V. E. EMMEL, S. A. LEVINSON, and M. E. FISCH. J. Exper. M., 1920, xxxi, 177. [36]

Determination of hæmoglobin during infancy by the Palmer and Van Slyke methods. V. B. APPLETON. Bull. Lying-in Hosp. N. Y., 1920, xii, 48.

Blood and Lymph Vessels

Blood pressure in operative surgery. A. H. MILLER. J. Am. M. Ass., 1920, lxxiv, 514. [37]

Vascular reactions in vascular hypertension. J. P. O'HARE. Am. J. M. Sc., 1920, clix, 369. [37]

Report of some interesting thoracic aneurisms. A. R. TAFT. Am. J. Roentgenol., 1920, vii, 90.

Subcutaneous rupture of the subclavian artery. C. ROWNTREE. Brit. M. J., 1920, i, 326.

Two cases of cirsoid aneurism. R. P. ROWLANDS. Proc. Roy. Soc. Med., Lond., 1920, xiii, Clin. Sect., 23.

The pathology of thrombo-angiitis obliterans. L. BUERGER. Med. Record., 1920, xcvii, 430.

General Bacterial Infections

Tetanus following serum treatment. G. VERNONI. Chir. d. organi di movimento, 1919, iii, 153. [37]

An anatomical and clinical study of the action of certain organs and systems in gas gangrene. G. RAZZABONI. Arch. ital. di chir., 1919, i, 322. [38]

Experimental Surgery and Surgical Anatomy

A plea for systematic research work in the anatomy, normal and morbid of the endocrine system. J. A. HAMMAR. Endocrinology, 1920, iv, 37.

A pressor compound from the pituitary gland. A. C. CRAWFORD. J. Pharm. & Exper. Therap. 1920, xv, 81.

The relation of the antitryptic titre of the blood to bacterial infection and anaphylaxis. F. H. TEALE and E. BACH. Proc. Roy. Soc. Med., Lond., 1920, xiii, Sect. Path., 43.

A non-clotting blood-pressure apparatus. P. D. LAMSON. J. Pharm. & Exper. Therap., 1920, xv, 75.

The effect of arteriovenous fistula upon the heart and blood vessels an experimental and clinical study. M. R. REID. Bull. Johns Hopkins Hosp., 1920, xxxi, 43. [38]

Mycosis of the bovine fœtal membranes due to a mould of the genus mucor. T. SMITH. J. Exper. M., 1920, xxxi, 115. [39]

The nature of the serum antitrypsin and its relation to autolysis, and the formation of toxins in infection and in anaphylaxis. F. H. TEALE and E. BACH. Proc. Roy. Soc. Med., Lond., 1920, xiii, Sect. Path., 5.

A simple method of cultivating the micro-organism of actinomycosis. M. H. GORDAN. Brit. M. J., 1920, i, 435.

Roentgenology and Radium Therapy

The pros and cons of radium. D. C. MORIARTA. Albany M. Ann., 1920, xli, 73.

The X-ray, a potent factor in determining important decisions. R. W. HENRY. J. Nat. M. Ass., 1920, xii, 11.

An address on war lessons for radiology. C. T. HOLLAND. Brit. M. J., 1920, i, 353. [39]

A resume of the year's work with radium. C. W. HANFORD. Illinois M. J., 1920, xxxvii, 168.

Further comments on radio-activity. A. SOILAND. Am. J. Roentgenol., 1920, n. s. vii, 102.

On the value of combined treatment with special reference to surgery, electricity, and X-rays. F. HERNAMAN-JOHNSON. Arch. Radiol. & Electrotherap., 1920, xxv, 325.

Comparison of the action of roentgen rays and radium. A. SOILAND. California State J. M., 1920, xviii, 76.

Observations on the X-ray treatment of neoplasms. G. E. VILVANDRÉ. Brit. M. J., 1920, i, 215. [49]

The treatment of tuberculosis with the X-rays. E. MUEHLMANN. Therap. Halbmonatsschr., 1920, xxxiv, 35. [40]

X-ray treatment of cancer. W. LOBENHOFFER. München. med. Wchnschr., 1920, lxvii, 119. [40]

Malignancy. M. ROBERTS. Arch. Radiol. & Electrotherap., 1920, xxv 308.

Roentgen-ray study of the great vessels. C. L. MARTIN. J. Am. M. Ass., 1920, lxxiv, 723. [41]

Roentgen-ray studies of the functional alterations of the diaphragm. H. K. PANCOAST. N. York M. J., 1920, cxi, 353. [41]

The radiographic study of the abdominal organs after inflation of the peritoneal cavity. W. C. ALVAREZ. California State J. M., 1920, xviii, 42. [42]

Interpretation of roentgen-ray findings in the diagnosis of peptic ulcer; some difficulties. C. W. MCCLURE and L. REYNOLDS. J. Am. M. Ass., 1920, lxxiv, 711. [42]

The roentgen ray in the diagnosis of ileocæcal valve insufficiency. E. REISSMAN. Am. J. Surg., 1920, xxxiv, 61.

The treatment of pruritis ani by X-ray radiation. W. J. YOUNG. Am. J. Roentgenol., 1920, n. s. vii, 116.

Military Surgery

Chemical warfare. DONNELLY and CLAFFEY. Am. J. Clin. M., 1920, xxvii, 165.

Industrial surgery and its similarity to war surgery. H. N. TORREY. J. Michigan State M. Soc., 1920, xix, 105.

The American physician in the draft and in the service in the world war. V. C. PEDERSEN. Mil. Surgeon, 1920, xlvi, 282.

The Medical Reserve Corps and the civilian practitioner. W. S. MIDDLETON. Wisconsin M. J., 1920, xviii, 407.

Industrial Surgery

Military surgery as applied to industrial surgery. S. R. MAXEINER. Modern Med., 1920, ii, 231.

What can be gained in the thorough study of the treatment of the serious wounds in the late war in its application to railroad surgery? E. A. VANDER VEER. N. York State J. M., 1920, xx, 70.

The reconstruction of the workman after injury. P. LEBRETON. N. York M. J., 1920, cxi, 452.

The physician's relationship to the industries; can there be, should there be, is there such a relationship? M. Z. WESTERVELT. J. Am. Inst. Homœop., 1920, xii, 911.

Hospitals: Medical Education and History

Ether day address. Traditions, standard, and prospects of the Massachusetts General Hospital. R. C. CABOT. Boston M. & S. J., 1920, clxxxii, 287.

Practical application of methods of standardization to the hospital. G. G. WARD, JR. N. York M. J., 1920, cxi, 441.

The hospital as a public utility; economic considerations on design and construction. J. H. W. BOWER. Med. Quarterly, 1920, i, 194.

William Paul Crillon Barton (1786-1856), Surgeon in the United States Navy—A Pioneer in American Naval Medicine. F. L. PLEADWELL. Mil. Surgeon, 1920, xlvi, 241.

Some points in consideration of medical education. E. A. FAULKNER. Med. J. Australia, 1920, i, 207.

Legal Medicine

Medico legal notes. J. COLLIE. Practitioner, 1920, civ, 181.

Hypothetical questions, expert evidence, etc. DAMERSON VS. ANSBRO. (Calif.) 178 Pac., p. 874. [42]

Disease resulting from accident. METROPOLITAN CASUALTY INSURANCE VS. EDWARDS. (Tex.) 210 S. W., p. 856. [43]

Privilege as to physician employed prior to injury. HIRSCHBERG VS. SOUTHERN PACIFIC COMPANY. (Calif.), 183, Pac. R., p. 141. [43]

Expert evidence—fracture cases. DAMERON VS. ANSBRO. (Calif.) 178 Pac., p. 874.

Release not a bar to action for roentgen-ray burns. WHEAT ET AL. VS. CARTER (N. H.), 106 Atl. R., p. 602. [43]

Liability for erysipelas — Touching reputation. HANSON VS. THELAN (N. D.), N. W. R., p. 457. [44]

Stenographer not able to bind company for operation. PRODUCERS' OIL CO. VS. GREEN. (Texas) 212, S. W. R. p. 68.

GYNECOLOGY

Uterus

A case of infantile uterus. C. JUARROS. Arch. de ginec., obst., y pediat., 1919, xxxii, 243.

Treatment of obstructive dysmenorrhœa. E. V. FREDERICK. Canadian M. Ass. J., 1920, x, 243. [45]

A case of spontaneous rupture of the uterus. J. GOROSTEGUI. Arch. de ginec., obst., y pediat., 1919, ii, 265.

Three cases of cancer developing rapidly in uterine fibromata during radiotherapy. P. MORAND. Bull. et mém. Soc. de chir. de Par., 1919, xlv, 1553. [45]

Malignant myomata and related tumors of the uterus; report of 72 cases occurring in a series of 4,000 operations for uterine fibromyomata. N. EVANS. Surg., Gynec. & Obst., 1920, xxx, 225. [45]

Adnexal and Peri-Uterine Conditions

Salpingitis and neoplasms in prolapse of the uterus. A. EZQUIERDO. Arch. de ginec., obst., y pediat., 1919, xxxii, 236. [46]

The origin of tumors of the ovary. J. R. GOODALL. Surg., Gynec. & Obst., 1920, xxx, 249.

The treatment of inflammatory adnexal tumors with injections of turpentine. A. FUCHS. Zentralbl. f. Gynaek., 1920, xliv, 33.

The importance of certain data in the diagnosis of ovarian cysts. R. BECERRO DE BENGOA. Arch. de ginec., obst., y pediat., 1919, xxxii, 272. [47]

An ectopic ovarian cyst. J. W. THOMPSON. Brit. M. J., 1920, i, 437.

Epithelial masses in the ovary. A. H. CURTIS. Surg., Gynec. & Obst., 1920, xxx, 316.

External Genitalia

Colon bacillus in the vagina as a cause of leucorrhœa, and sterility. S. BARBASH. J. M. Soc. New Jersey, 1920, xvii, 87.

Trichomonas vaginalis vaginitis. J. B. DE LEE. Illinois M. J., 1920, xxxvii, 186. [48]

Gonorrhœal infection in childhood. P. B. BLAND. N. York M. J., 1920, cxi, 489. [48]

Veneroid ulcer. G. M. OLSON. Arch. Dermat. & Syph., 1920, n. s. i, 279.

Local anæsthesia in vaginal operations. H. MARTIUS. Med. Klin., 1920, xvi, 5. [49]

Miscellaneous

The gynecologist: some of his problems. W. A. DRAKE. J. Nat. M. Ass., 1920, xii, 16.

Are some of the methods commonly practiced in gynecology constructive or destructive in results? B. SAUNDERS. Texas State J. M., 1920, xv, 391.

Congenital absence of uterus, both tubes, and right ovary. B. O. ROBERTSON. South. M. J., 1920, xiii, 205.

Sterility. B. SOLOMONS. Surg., Gynec. & Obst., 1920, xxx, 173. [49]

The instincts, the emotions, and the endocrines in sterility. S. W. BANDLER. Med. Record, 1920, xcvii, 383.

The thyroid gland in relation to gynecology and obstetrics. MARINE. Arch. de ginec., obst., y pediat., 1919, xxxii, 285.

Non-microbic genital inflammations. S. RECASENS. Arch. de ginec., obst., y pediat., 1919, xxxii, 247.

Gynecological affections and syphilis. J. C. AHUMADA. Rev. argent. de obst., y ginec., 1919, iii, 452. [49]

The treatment of gonorrhœa in women. R. S. FOSS. Brit. M. J., 1920, i, 434.

The treatment of gonorrhœa in the female. SICILIA. Siglo méd., 1919, lxvi, 1079. [50]

Adenomyomata with special reference to those occurring in the broad ligament. O. H. SCHWARTZ. J. Missouri State M. Ass., 1920, xvii, 91.

Conservative surgery of the pelvic organs. B. A. POORMAN. J. Missouri State M. Ass., 1920, xvii, 103.

The Schauta-Wertheim operation in the treatment of genital prolapse. T. J. PICCARDO. Rev. argent. de obst. y ginec., 1919, iii, 405. [50]

The value of radium therapy in menorrhagia and metorrhagia, with the technique used. M. P. DEGRAIS. Canadian Pract. & Rev., 1920, xlv, 73.

Electricity in the treatment of dysmenorrhœa. T. C. LOW. Pacific Coast J. Homœop., 1920, xxxi, 100.

The results of operation in pelvic disease. G. P. LAROQUE. N. York M. J., 1920, cxi, 453.

OBSTETRICS

Pregnancy and Its Complications

Prophylaxis of gestation. A. B. DAVIS. Bull. Lying-In Hosp. N. Y., 1920, xii, 2.

Some observations on the chemical examination of the blood and urine in normal pregnancy and in the toxæmia of pregnancy. J. R. LOSEE. Bull. Lying-in Hosp. N. Y., 1920, xii, 38.

The rôle of carbohydrates in the treatment of toxæmias of early pregnancy. P. TITUS, G. L. HOFFMANN, and M. H. GIVENS. J. Am. M. Ass., 1920, lxxiv, 777. [52]

Focal infection and its relation to obstetrics. J. E. TALBOT. J. Am. M. Ass., 1920, lxxiv, 874.

Dental operation during pregnancy. W. B. JONES. J. Nat. M. Ass., 1920, xii, 10.

Influenza and pregnancy. Collective abstract. S. A. WEINTRAUB. Modern Med., 1920, ii, 219.

The occurrence of epidemic influenza in pregnancy. C. W. KOSMAK. Bull. Lying-in Hosp., N. Y., 1920, xii, 22.

Influenza and pregnancy—a symposium. W. W. WINANS. J. Am. Inst. Homœop., 1920, xii, 929. [53]

Encephalitis lethargica in pregnancy. M. SCHULZE. J. Am. M. Ass., 1920, lxxiv, 732. [53]

Pyelitis complicating pregnancy. A. B. DAVIS. Bull. Lying-in Hosp., N. Y., 1920, xii, 30.

Renal complications of pregnancy from the standpoint of the urologist. H. G. BUGBEE. Bull. Lying-in Hosp. N. Y., 1920, xii, 11. [54]

A clinical study of ectopic pregnancy: a new etiological theory. H. E. STEIN. Med. Record, 1920, xcvii, 478.

The diagnosis of ectopic gestation. A. M. JUDD. Med. Times, 1920, xlviii, 53.

Is it prudent to temporize in ectopic pregnancy? VITAL AZA. Prog. de la clin., Madrid 1919, vii, 220. [54]

Double ectopic pregnancy with a live fœtus of six months. TORRE Y BLANCO. Med. Ibera, 1920, x, 118.

Cases of ectopic pregnancy. F. W. GERSHAW. Canadian M. Ass. J., 1920, x, 261.

Six months' pregnancy in a rudimentary uterine horn. E. A. FOX. Rev. argent. de obst. y ginec., 1919, iii, 487.

Certain considerations upon tuberculosis and pregnancy. C. F. GANDOLFO. Rev. argent. de obst. y ginec., 1919, iii, 485.

Pregnancy complicated by a large fibroid tumor. J. C. APPLEGATE. N. York M. J., 1920, cxi, 529.

The Lettsomian lectures on tumors complicating pregnancy, labor, and the puerperium. II. H. R. SPENCER. Brit. M. J., 1920, i, 246. [54]

Cæsarean section. N. W. EMERSON. Boston M. & S. J., 1920, clxxxii, 272. [55]

Indications of extraperitoneal cæsarean section. T. CHAMORRO. Rev. argent. de obst. y ginec., 1919, iii, 482.

Vaginal cæsarean section in placenta prævia. T. J. GONZALEZ. Rev. argent de obst. y ginec., 1919, iii, 486.

Cæsarean section for contraction ring. G. A. HAGENAUER. Med. J. Australia, 1920, i, 234.

Cæsarean section under procaine anæsthesia. J. M. SLEMONS and J. M. JOHNSON. J. Am. M. Ass., 1920, lxxiv, 882.

The treatment of certain cases of placenta prævia by conservative measures. C. W. KOSMAK. Bull. Lying-in Hosp. N. Y., 1920, xii, 51. [56]

Hæmostasis in placenta prævia centralis. P. MATHES. Zentralbl. f. Gynaek., 1920, xliv, 57. [57]

Therapeutic abortion. A. FRERS. Rev. argent. de obst. y ginec., 1919, iii, 430. [57]

The treatment of inevitable abortion. A. VILLAR. Rev. argent. de obst. y ginec., 1919, iii, 484.

A case of cervical abortion. G. J. C. RUSSELL. Brit. M. J., 1920, i, 363.

Auscultation of the fœtus. H. COLMEGNA and S. VARALLA. Semana méd., 1920, xxvii, 213.

Labor and Its Complications

Anæsthesia in obstetrics. P. APPLETON. Boston M. & S. J., 1920, clxxxii, 321. [58]

Puncture of the uterus in hydramnion. E. WORMSER. Zentralbl. f. Gynaek., 1920, xliv, 137. [59]

A confinement case complicated by hydrocephalus. E. B. MOORE. Med. J. Australia, 1920, i, 191.

An analysis of fifty-six cases of breech presentation. Description of a method of delivery in which manual extraction of the extended arms is rarely necessary. H. HALSTED. J. Am. M. Ass., 1920, lxxiv, 796. [59]

Artificial rotation of the head in persistent occipito-posterior cases. J. L. LACKIE. Edinburgh M. J., 1920, n. s. xxiv, 168. [59]

Rupture of the uterus. F. R. PASMAN. Rev. argent. de obst. y ginec., 1920, iii, 475.

The treatment of rupture of the lower segment of the uterus. Suture from the interior of the cavity. V. MONTEVERDE. Rev. argent. de obst. y ginec., 1919, vi, 472.

Rupture of the rectum during labor. L. DORSETT. Surg., Gynec. & Obst., 1920, xxx, 283.

Puerperium and Its Complications

The dangers of blood transfusion in obstetrics. E. OPITZ. Zentralbl. f. Gynaek., 1920, xliv, 6.

The isolated compression of the aorta, a prompt, effective, painless, and safe method of stopping hæmorrhage in obstetrical practice. C. J. GAUSS. Zentralbl. f. Gynaek., 1920, xliv, 10. [60]

Artificial ischæmia of the lower half of the body. E. SEHRT. Zentralbl. f. Gynaek., 1920, xliv, 8.

The care of the bowels during the puerperal period: a further report. R. MCPHERSON. Bull. Lying-in Hosp. N. Y., 1920, xii, 35.

Puerperal infection: a plea for early operation in pelvic septic phlebitis. A. J. NYULASY. Surg., Gynec. & Obst., 1920, xxx, 265.

Immobilization in the treatment of puerperal thrombophlebitis. J. A. BERUTI. Rev. argent. de obst. y ginec., 1919, iii, 478.

Inversion of the uterus. C. CULBERTSON. Surg., Gynec. & Obst., 1920, xxx, 315.

Total inversion of the parturient uterus. W. G. EVANS. Lancet, 1920, cxcviii, 713.

New-Born

The problem of the premature infant. J. F. SINCLAIR. Arch. Pediat., 1920, xxxvii, 139. [60]

The newer knowledge of the new-born. G. A. MITCHELL. Arch. Pediat., 1920, xxxvii, 151. [61]

Obstetrical paralysis in the newly born. A. M. ARQUELLADA. Arch. de ginec., obst., y pediat., 1919, xxxii, 269.

The frequency and significance of omphalitis. A. N. CREADICK. Surg., Gynec. & Obst., 1920, 278.

Illegitimate births and ophthalmia neonatorum. G. H. G. DUNDAS. Brit. M. J., 1920, i, 436.

Feeding the new-born. W. N. BRADLEY. Arch. Pediat., 1920, xxxvii, 144. [61]

Artificial lactation. V. CAVIGGIA and C. DAZA. Semana méd., 1920, xxvii, 97.

Miscellaneous

Influence of the male on the production of twins. C. B. DAVENPORT. Med. Record, 1920, xcvii, 509.

The teaching of midwifery. C. BERKELEY. Med. Press, 1920, n. s. cxix, 194.

The next step is the campaign for infant welfare. The education of the women of the nation for motherhood. I. W. BREWER. Boston M. & S. J., 1920, clxxxii, 276.

Therapy in obstetrics. J. R. GARBER. South. M. J., 1920, xiii, 201.

Discussion of the report on the teaching of obstetrics and gynecology. T. W. EDEN. Proc. Roy. Soc. Med., Lond., 1920, xiii, Sect. Obst. & Gynæc., 39. [62]

A criticism of the report of the Committee of the Council of the Section of Obstetrics and Gynæcology of the Royal Society of Medicine upon the teaching of obstetrics and gynecology in London. BARRETT, H. SPENCER, and H. WILLIAMSON. Proc. Roy. Soc. Med., Lond., 1920, xiii, Sect. Obst. & Gynæc., 44. [63]

Pennsylvania State Prenatal and Postnatal Clinic at the Henry Phipps Institute in Philadelphia, a brief report of the work done during the past year. C. C. NORRIS and N. S. ROTHSCHILD. Pennsylvania M. J., 1920, xxiii, 338. [64]

The care of pregnant women. F. VILLANUEVA. Arch. de ginec., obst., y pediat., 1919, xxxii, 279.

Hypogalactia in health and disease. M. E. TASSINI and M. TAPPER. Semana méd., 1920, xxvii, 92.

GENITO-URINARY SURGERY

Adrenal, Kidney, and Ureter

A review of renal surgery. H. PACKARD. J. Am. Inst. Homœop., 1920, xii, 921.

Recent advance in the diagnosis of surgical lesions of the kidney. W. F. BRAASCH. Minnesota Med., 1920, iii, 112. [65]

Infections of the kidney in gynecological practice. W. C. DANFORTH. Surg., Gynec. & Obst., 1920, xxx, 284. [66]

A case of large hydronephrosis. R. F. O'NEIL. Internat. J. Surg., 1920, xxxiii, 84.

Renal calculus. W. HUTCHINSON. Canadian M. Ass. J., 1920, x, 250. [66]

Clinical considerations of tumors of the kidney, with a report of two cases of myoma. R. MOLLA. Med. Ibera, 1920, x, 113, 134. [67]

Riedel's lobe of the liver complicating urological diagnosis. V. J. O'CONOR. J. Urol., 1920, iv, 97. [67]

Observations on the hæmaturia of chronic infectious focal nephritis. R. F. O'NEIL. Internat. J. Surg., 1920, xxxiii, 72. [68]

Ureteral kinks and their significance. F. A. ROBERTS. Med. Record, 1920, cxi, 437.

Unusual case of ureteral calculus. L. BUERGER. Internat. J. Surg., 1920, xxxiii, 64.

Bladder, Urethra, and Penis

Complete closure of the urinary bladder after coagulation of tumors. G. KOLISCHER and J. S. EISENSTAEDT. J. Am. M. Ass., 1920, lxxiv, 801. [68]

Stricture of the male urethra in India. C. BRODRITH. Indian M. Gaz., 1920, lv, 118.

Two cases of gangrene of the penis. C. San Antonio. Med. Ibera, 1920, x, 137.

Circumcision—a barbarous and unnecessary mutilation. G. S. Thompson. Brit. M. J., 1920, i, 436.

Genital Organs

Prostatectomy. A. L. Soresi. Internat. J. Surg., 1920, xxxiii, 49. [69]

Reducing the mortality in prostatic operations. A. O. Singleton. Texas State J. M., 1920, xv, 402. [69]

Miscellaneous

A review of the military urological sevice. A. H. Peacock. Northwest Med., 1920, xix, 64.

The so-called interstitial gland implantation—to whom is the credit due? G. F. Lydston. Am. J. Surg., 1920, xxxiv, 77.

Sterility in the male. K. Walker. Brit. M. J., 1920, i, 11.

Refinement of colorimetric methods with special reference to indigo-carmin as a bladder test. G. G. Reinle and E. S. DePuy. California State J. M., 1920, xviii, 49. [69]

Urinary tract purpura: a probable entity. A. R. Stevens and J. P. Peters. J. Urol., 1920, iv, 1. [70]

Tuberculosis of the urinary system. J. E. Palmer. Canadian M. Ass. J., 1920, x, 225.

A case report of prostatectomy and seminal vesiculectomy. F. W. Smith. Internat. J. Surg., 1920, xxxiii, 69.

SURGERY OF THE EYE AND EAR

Eye

An uncommon case of foreign body in the eye. H. G. Allen. Med. J. Australia, 1920, i, 149.

The removal of magnetic foreign bodies from the vitreous. L. M. Francis. Arch. Ophth., 1920, xl, 198. [71]

Prolonged retention of foreign body in the cornea. E. R. Chambers. Brit. M. J., 1920, i, 363.

Burn of both eyes by salt of copper. H. F. Hansell. Am. J. Ophth., 1920, iii, 208.

Injury to the fundus oculi at birth. H. R. Jeremy. Proc. Roy. Soc. Med., Lond., 1920, xiii, Sect. Ophth., 4.

Case of birth injury. W. H. McMullen. Proc. Roy. Soc. Med., Lond., 1920, xiii, Sect. Ophth., 6.

Displacement of the eye in association with chronic frontal sinusitis, with a history of five cases. R. C. Lynch. South. M. J., 1920, xiii, 207.

Nasal infection the basis of certain ocular infections. J. B. Potts. Am. J. Ophth., 1920, iii, 195.

The effect of nose and throat infections upon ocular function of aviators. C. Berens and C. T. Uren. Am. J. Ophth., 1920, iii, 170.

Ocular manifestations following exposure to various types of poisonous gases. G. S. Derby. Arch. Ophth., 1920, xlix, 119.

Eye lesions produced by light rich in ultraviolet rays. Senile cataract, senile degeneration of retina. J. Vander Hoeve. Am. J. Ophth., 1920, iii, 178.

Contribution to the treatment of ocular complications of blenorrhagic infection. J. L. Dehogues. Rev. de med. y cirug. de la Habana, 1920, xxv, 66.

Demonstration of the Winer operation for squint. A. O. Pfingst. Mississippi Valley M. J., 1920, xxvii, 55.

Partial avulsion of the disk with ectasia. W. H. Simpson. Proc. Roy. Soc. Med., Lond., 1920, xiii, Sect. Ophth., 9.

Excision of the lacrymal sac. W. C. Posey. Am. J. Ophth., 1920, iii, 206.

Restoration of socket. R. R. Cruise. Proc. Roy. Soc. Med., Lond., 1920, xiii, Sect. Ophth., 8.

Improved method for total enucleation of the eyeball. F. Krawss. Am. J. Ophth., 1920, iii, 166.

A preliminary note on an investigation as to the actual weight of the cataractous lens—together with some clinical notes on cataract. A. E. J. Lister. Indian M. Gaz., 1920, lv, 84.

The technique of radium application in cataracts. I. Levin. Am. J. Roentgenol., 1920, n. s. vii, 107. [71]

Unusual optic nerve tumor. J. F. Carruthers. Proc. Roy. Soc. Med., Lond., 1920, xiii, Sect. Ophth., 2.

A case of hydatid cyst of the orbit. E. A. Carrasco. Rev. med. d. Rosario, 1920, x, 62.

Lymphosarcoma of the orbit, probably within the capsule of Tenon. H. V. Wurdemann. Am. J. Ophth., 1920, iii, 210.

Primary glaucoma, report of case—recovery without operation. J. R. Phelan. J. Oklahoma M. Ass., 1920, xiii, 99.

A new operation for glaucoma involving a new principle in the etiology and treatment of chronic primary glaucoma. E. J. Curran. Arch. Ophth., 1920, xlix, 131.

The technique of puncture for glaucoma. E. Wiegman. Klin. Monatsbl. f. Augenh., 1920, lxiv, 117. [71]

Abducens palsy. Transplantation of vertical recti in three cases. R. O'Connor. California State J. M., 1920, xviii, 90. [71]

A method of iridotomy. M. S. Mayou. Brit. J. Ophth., 1920, iv, 124. [72]

The therapeutic use of radium in diseases of the eye. H. H. Janeway. Arch. Ophth., 1920, xlix, 156.

Ear

The relation of otolaryngology to child hygiene. D. W. Layman. J. Indiana State M. Ass., 1920, xiii, 79.

Note on the anatomy of the membranous labyrinth. J. K. M. Dickie. J. Laryngol., Rhinol., & Otol., 1920, xxxv, 76.

The semicircular canals; a simple method of demonstrating their relative position to each other and their planes of incidence. J. D. Lithgow. J. Laryngol., Rhinol. & Otol., 1920, xxxv, 81.

The complications of chronic middle-ear suppuration. J. S. Fraser and W. T. Garretson. Ann. Otol., Rhinol., & Laryngol., 1919, xxviii, 1091.

Acute otitis media complicating epidemic influenza observed in the U. S. Base Hospital Camp McClellan, Anniston, Ala., in the fall of 1918. J. C. Keeler. Pennsylvania M. J., 1920, xxiii, 325.

A case of chronic middle-ear suppurations, cholesteatoma, and mastoiditis complicated by labyrinthitis, sinus thrombosis, and meningitis. J. K. Milne Dickie. Canadian M. Ass. J., 1920, x, 238.

Clinical problems relating to chronic suppurative discharge of the middle ear. G. E. Shambaugh. Illinois M. J., 1920, xxxvii, 203. [72]

Cerebellar abscess associated with chronic suppurative otitis media; operation and recovery. J. C. KEELER. Laryngoscope, 1920, xxx, 143.

Acute hæmorrhagic nephritis secondary to middle-ear infection: report of case. J. W. SHUMAN. J. Am. M. Ass., 1920, lxxiv, 887.

Acute mastoiditis: its etiology, pathology, diagnosis and treatment. R. J. TIVNEN. Illinois M. J., 1920, xxxvii, 162.

A plea for early operative interference in acute suppurative affections of the mastoid. O. M. ROTT. Northwest Med., 1920, xix, 46. [72]

An interesting type of mastoiditis. E. BOTELLA. Rev. de med. y cirug. pract., 1919, xliii, 299.

A consideration of a typical mastoiditis. S. M. SMITH. South. M. J., 1920, xiii, 211.

Mastoid disease with cholesteatoma complicated by a cerebral abscess. R. B. BROWN. Med. J. Australia, 1920, i, 212.

A new method for closing off the Eustachian tube in the radical mastoid operation. A. KAHN. Laryngoscope, 1920, xxx, 146.

The incomplete mastoid operation as a cause of delayed healing. F. T. HILL. Laryngoscope, 1920, xxx, 154. [72]

Mastoiditis. W. F. BEGGS. J. Am. Inst. Homœop., 1920, xii, 837.

Cancer of the ear, nose and throat. C. F. WELTY. California State J. M., 1920, xviii, 84.

SURGERY OF THE NOSE, THROAT, AND MOUTH

Nose

Implantation of tibial graft for the correction of saddle-back deformity of the nose. L. FISHER. Laryngoscope, 1920, xxx, 182.

Unique foreign body in the nose. I. W. VOORHEES. J. Am. M. Ass., 1920, lxxiv, 672.

Sinus diseases. W. BISHOP. J.-Lancet, 1920, n. s. xl, 157.

War wounds of the sinuses with X-ray plates. H. A. FLETCHER. California State J. M., 1920, xviii, 94.

Brain abscess as a complication of acute infection of nasal accessory sinus disease. L. W. JESSAMAN. Laryngoscope, 1920, xxx, 147.

Sphenoidal empyema and epidemic cerebrospinal fever. D. EMBLETON. J. Roy. Army M. Corps, Lond., 1920, xxxiv, 236.

A case of carcinoma of the antrum. P. S. STOUT. Laryngoscope, 1920, xxx, 178.

A case of adenocarcinoma of the nares. D. N. HUSIK. Laryngoscope, 1920, xxx, 178.

Plasmoma of the nasopharynx. J. T. ROGERS. Canadian M. Ass. J., 1920, x, 223.

External surgery of the nasal accessory sinuses. C. G. COAKLEY and W. W. PEARSON. Surg., Gynec. & Obst., 1920, xxx, 309. [74]

Killian operation on frontal sinus and ethmoids. L. A. COFFIN. N. York M. J., 1920, cxi, 448.

Conservative surgery of the lateral sinus. C. C. JONES. Ann. Otol., Rhinol. & Laryngol., 1919, xxviii, 1164.

An ethmoid operation. J. A. PRATT. Ann. Otol., Rhinol. & Laryngol., 1919, xxviii, 1051. [74]

Submucous operations. O. TYDINGS. Illinois M. J., 1920, xxxvii, 159.

Throat

Laryngeal crisis with an unusual complication: report of a case. L. T. GREGORY. J. Am. M. Ass., 1920, lxxiv, 793.

Papillomata of the larynx in children. A. QUADRI. Semana méd., 1920, xxvii, 254. [75]

Angiomata of the larynx. Report of three cases. G. B. NEW and C. M. CLARK. Ann. Otol., Rhinol. & Laryngol., 1919, xxviii, 1025.

Adenomata (glandular tumors) of the larynx. I. MOORE. J. Laryngol., Rhinol. & Otol., 1920, xxxv, 65.

Two cases of fibromyxoma of the larynx. A. J. WAGERS. Laryngoscope, 1920, xxx, 177.

Thyrotomy in the removal of a subglottic laryngeal epithelioma. B. C. DAVIES. J. Am. M. Ass., 1920, lxxiv, 888. [75]

A case of lymphosarcoma of the tonsil and palate. P. WATSON-WILLIAMS. Bristol M.-Chir. J., 1920, xxxvii, 51.

Report of two cases of lung abscess following tonsillectomy under local anæsthesia. J. R. SIMPSON and H. G. NOAH. Pennsylvania M. J., 1920, xxiii, 322. [76]

A case of recurrent tonsillar growth. J. J. RAINEY. N. York State J. M., 1920, xx, 80.

Tonsillectomy. T. B. KELLOGG. Pacific Coast J. Homœop., 1920, xxxi, 96.

Surgery of the tonsil. H. C. TODD. J. Oklahoma State M. Ass., 1920, xiii, 100. [76]

Mouth

Histopathology of the jaws and apical dental tissues. E. S. TALBOT. Dental Cosmos, 1920, lxii, 295.

Mouth infection as a source of systemic disease. M. N FEDERSPIEL. Internat. J. Orthodont. & Oral Surg., 1920, vi, 180.

Oral sepsis and the rôle it plays in certain orthopedic conditions. J. GROSSMAN. Med. Record, 1920, xcvii, 514.

Dental sepsis in children; its consequences and treatment. F. S. STEADMAN. Proc. Roy. Soc. Med., Lond., 1920, xiii, Sect. Odontol., 37. [76]

Why "pulling" teeth fails. A plea for their surgical removal when evulsion is indicated by infection. R. BURNS, JR. Dental Cosmos, 1920, lxii, 371. [77]